

**Environmental  
Resources  
Management**

15 May 2018  
Reference: 0042525

VIA ELECTRONIC MAIL

Mr. Will Geiger  
Remedial Project Manager  
U.S. Environmental Protection Agency, Region III  
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RE: North Penn Area 2 Superfund Site/Former AMETEK Facility  
Progress Report for 2017

Dear Mr. Geiger:

On behalf of AMETEK, Inc. (AMETEK) and Penn Color, Inc. (Settling Defendants), Environmental Resources Management, Inc. (ERM) hereby submits this progress report pursuant to Section X of the Consent Decree (Consent Decree) executed between the Settling Defendants and the United States of America and entered on 10 February 2011.

**SUMMARY OF ACTIVITIES PERFORMED IN REFERENCED PERIOD**

1. Recovery wells PW-3 and MW-2 were operated to recover volatile organic compound (VOC)-impacted groundwater. See the Summary of Data section below.
2. The Settling Defendants continued Wetland and Surface Soil operation and maintenance (O&M) activities, including the following.
  - a. ERM inspected the wetland and surface soil area restorations (plantings and seeded areas).
3. The Settling Defendants continued Groundwater O&M activities, including the following.
  - a. ERM replaced the PW-3 pump wet end and riser pipe on 28 March 2017.
  - b. ERM conducted a Site-wide groundwater elevation survey (39 wells – PW-3 was unable to be monitored) on 15 May 2017.
  - c. ERM collected surface water samples and surface water elevation measurements and samples from four locations on 15 May 2017.

- d. ERM performed the Five-Year Review groundwater sampling on Group 3 wells (36 wells). Sampling began on 16 May 2017 and was completed on 26 May 2017.
    - i. Consistent with Table 4 of the Remedial Design, groundwater samples were not collected from MW-9S, MW-9D, MW-14S or MW-14D because groundwater concentrations of Site COCs from previous sampling events from MW-9I and MW-14I did not exceed VOC clean up levels.
  - e. For the semiannual groundwater sampling event, ERM installed passive diffusion bags (PDBs) in applicable Group 1 monitoring wells on 31 October 2017. PDBs were retrieved and samples were collected from Group 1 monitoring wells on 15 November 2017.
  - f. ERM collected surface water elevation measurements and samples from four locations on 20 November 2017.
  - g. ERM conducted a Site-wide groundwater elevation survey (39 wells – PW-3 was unable to be monitored) on 15 November 2017.
- 4. The Settling Defendants worked with USEPA during the Five-Year Review process. USEPA finalized the First Five-Year Review in May 2017. The Five-Year Review included recommendations of PFAS sampling and for vapor intrusion assessment.
  - 5. The Settling Defendants submitted to USEPA an e-mail-based PFAS Sampling Work Plan on 9 November 2017. USEPA requested a more formal work plan. ERM submitted to USEPA the Sampling and Analysis Plan Addendum for Perfluoroalkyl Substances on 23 February 2018. USEPA provided comments on 7 May 2018.
  - 6. The Settling Defendants submitted to USEPA a Vapor Intrusion Assessment Work Plan on 25 September 2017. USEPA approved the work plan on 26 September 2017.
    - a. In accordance with the above work plan, ERM conducted an initial Vapor Intrusion Assessment of select on-Site buildings by collecting sub-slab soil gas samples. A total of 10 sub-slab soil gas samples were collected on 19 November 2017. Six samples were collected from Building 1, two samples from the Machine Shop, and two samples from the HVAC building. Results were provided to EPA on 23 February 2018.
    - b. Based on a 26 February 2018 phone call with the Settling Defendants, EPA, ERM, and Penn E&R, a second round of sub-slab soil gas sampling was performed on 2 March 2018

and the results were provided to EPA on 29 March 2018. The Settling Defendants are currently developing the plan/design for a vapor mitigation system in the vicinity of select sub-slab samples in Building 1.

***SUMMARY OF DATA RECEIVED OR GENERATED IN REFERENCED PERIOD***

1. Table 1A and Table 1B contain the groundwater sample analytical data for the Group 3 sampling event conducted between 16-26 May 2017 and the Group 1 sampling event conducted on 15 November 2017, respectively. Results of these sampling events remain consistent with recent historical results. Group 1 wells, other than the recovery wells, continue to be below the remediation goals, which indicates that the groundwater capture system continues to be effective. Concentrations of groundwater collected from perimeter well, MW-13D, exceeded the arsenic cleanup standard. It should be noted that arsenic concentrations at MW-13D have been detected above the cleanup goal of 10 µg/L since prior to remedy implementation. However, following the remedy construction, the concentration has reduced from 20 µg/L to 15.1 µg/L suggesting that the remediation could be having a positive effect on this condition.
2. Table 2A and Table 2B contain the surface water sample analytical data for the surface water events conducted on 15 May 2017 and 20 November 2017, respectively. All the surface water sample results were below the remediation goals (Surface Water Criteria), which indicates the wetlands remediation work has been effective.
3. Tables 3 through 5 summarize the recent performance data for recovery wells PW-3 and MW-2. The most recent estimate of the amount of VOCs remaining in the bedrock groundwater is depicted graphically on Figure A.
4. Tables 6A and 6B contain the groundwater level and surface water level monitoring data from the May 2017 and November 2017 events.
5. Pumping rate and static water level monitoring data were evaluated to assure maintenance of hydraulic control over the contaminant plume. Figures 1a through 3b are potentiometric surface maps for respectively the shallow, intermediate, and deep wells and are based on the May 2017 water level monitoring. Figures 1b through 3b are based on November 2017 water level monitoring. The figures indicate groundwater drawdown and capture is apparent.

6. Figure 7 provides a plume map for trichloroethylene in the shallow wells, using the May 2017 groundwater sample results.
7. The results of the two rounds of sub-slab sampling were provided to USEPA on 23 February 2018 and 29 March 2018. Figure 8 presents the results from both sampling events.

***SUMMARY OF DELIVERABLES SUBMITTED IN REFERENCED PERIOD***

1. The progress report for 2016 was submitted on 28 February 2017.
2. The Settling Defendants submitted to USEPA a Vapor Intrusion Assessment Work Plan on 25 September 2017. USEPA approved the work plan on 26 September 2017.
3. The Settling Defendants submitted to USEPA an e-mail-based PFAS Sampling Work Plan on 9 November 2017. USEPA requested a more formal work plan. ERM submitted to USEPA the Sampling and Analysis Plan Addendum for Perfluoroalkyl Substances on 23 February 2018. USEPA provided comments on 7 May 2018.

***ANTICIPATED ACTIVITIES FOR THE NEXT PERIOD***

1. The Settling Defendants will continue Wetland and Surface Soil RA activities, including the following.
  - a. The wetland and surface soil area restorations (plantings and seeded areas) may be monitored.
2. The Settling Defendants will continue Groundwater RA activities, including the following.
  - a. PW-3 and MW-2 pump maintenance and/or replacement will be performed as necessary.
  - b. PW-3 and MW-2 operations and pumping rates will be monitored.
3. The following monitoring and sampling events will be performed in 2018.
  - a. Annual groundwater sampling of Groups 1 and 2 wells (23 wells), site-wide wells water level gauging (40 wells), and stream gauging and sampling (4 locations) – anticipated for May 2018.

- b. Semiannual groundwater sampling (7 wells), Site-wide wells water level gauging (40 wells), and stream gauging and sampling (4 locations) – anticipated for November 2018.
4. It is anticipated that the PFAS Work Plan will be approved in 2018, and as a result, groundwater sampling for PFAS compounds will be conducted.
5. The Settling Defendants will develop the plan/design for a vapor mitigation system in the vicinity of select sub-slab samples in Building 1.

#### ***SCHEDULE PERCENT COMPLETION AND DELAYS***

1. Not applicable at this time.

#### ***MODIFICATIONS TO PLANS OR SCHEDULES***

1. There are no modifications to the work plans or other schedules at this time.

#### ***COMMUNITY RELATIONS***

1. Not applicable at this time.

Please review this information and, if you have any questions, please call me at 484-913-0360 or Rich Dulcey at 609-403-7509.

Sincerely,



Jake Ferry, P.E.  
*Project Manager*

Enclosures:      Tables 1A through 6b  
                        Figures A and 1 through 8

cc:    D. Armstrong, PADEP  
         T. Deeney, AMETEK  
         M. Berg, Madelaine R. Berg, Esq. LLC  
         W. Ponticello, Penn E&R

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R. Dulcey, ERM

Table 1a

## Surface Water Sampling Results - May 2017

North Penn Area 2 Superfund Site

Hatfield Township, PA

| Analyte                               | Cleanup Standard* (µg/L) | CLIENT ID: MW-1S<br>LAB ID: 9009673<br>COLLECTION DATE: 5/22/2017<br>SAMPLE MATRIX: Groundwater<br>SAMPLE UNITS: µg/L |   |      | MW-1I<br>9009676<br>5/22/2017<br>Groundwater<br>µg/L |   |      | MW-1D<br>9009674<br>5/22/2017<br>Groundwater<br>µg/L |   |      | DUP-052217**<br>9009675<br>5/22/2017<br>Groundwater<br>µg/L |   |      | MW-2S<br>8998614<br>5/16/2017<br>Groundwater<br>µg/L |   |      | MW-2I<br>9018255<br>5/26/2017<br>Groundwater<br>µg/L |     |      |   |
|---------------------------------------|--------------------------|---|---|------|--|---|------|--|---|------|---|---|------|--|---|------|--|-----|------|---|
|                                       |                          | Result  | Q | MDL  | Result   | Q | MDL  | Result   | Q | MDL  | Result  | Q | MDL  | Result   | Q | MDL  | Result   | Q   | MDL  |   |
| <i>Volatile Organic Compounds</i>     |                          |   |   |      |  |   |      |  |   |      |   |   |      |  |   |      |  |     |      |   |
| Carbon Tetrachloride                  | 5                        | ND  |   | 0.5  | ND   |   | 0.5  | ND   |   | 0.5  | ND  |   | 0.5  | ND   |   | 0.5  | ND   |     | 0.5  |   |
| 1,2-Dichloroethane                    | 5                        | ND  |   | 0.5  | ND   |   | 0.5  | ND   |   | 0.5  | ND  |   | 0.5  | ND   |   | 0.5  | 0.5  | J   | 0.5  |   |
| 1,1-Dichloroethene                    | 7                        | ND  |   | 0.5  | ND   |   | 0.5  | ND   |   | 0.5  | ND  |   | 0.5  | ND   |   | 0.5  | 1300   |     | 0.5  |   |
| cis-1,2-Dichloroethene                | 70                       | ND  |   | 0.5  | ND   |   | 0.5  | ND   |   | 0.5  | ND  |   | 0.5  | ND   |   | 53   | 0.5  | 310 | 0.5  |   |
| Tetrachloroethene                     | 5                        | ND  |   | 0.5  | ND   |   | 0.5  | ND   |   | 0.5  | ND  |   | 0.5  | ND   |   | 64   | 0.5  | ND  | 0.5  |   |
| Trichloroethene                       | 5                        | 0.7   | J | 0.5  | 0.8  | J | 0.5  | ND   |   | 0.5  | ND  |   | 0.5  | ND   |   | 3500 | 0.5  | 660 | 0.5  |   |
| Vinyl Chloride                        | 2                        | ND  |   | 0.5  | ND   |   | 0.5  | ND   |   | 0.5  | ND  |   | 0.5  | ND   |   | 0.5  | 1  |     | 0.5  |   |
| <i>Semivolatile Organic Compounds</i> |                          |   |   |      |  |   |      |  |   |      |   |   |      |  |   |      |  |     |      |   |
| 1,4-Dioxane                           | 6.1                      | ND  |   | 1    | ND   |   | 1    | ND   |   | 1    | ND  |   | 1    | ND   |   | 1    | 130  | 2   | 35   | 2 |
| <i>Dissolved Metals</i>               |                          |   |   |      |  |   |      |  |   |      |   |   |      |  |   |      |  |     |      |   |
| Antimony                              | 6                        | ND  |   | 0.48 | 3.1  |   | 0.48 | ND   |   | 0.48 | ND  |   | 0.48 | ND   |   | 0.48 | ND   |     | 0.48 |   |
| Arsenic                               | 10                       | ND  |   | 0.68 | 1.9  |   | 0.68 | 5.3  |   | 0.68 | 5.4   |   | 0.68 | 1.1  | J | 0.68 | 8.8  |     | 0.68 |   |
| Manganese                             | 217                      | 15.7  |   | 1.8  | 21.4   |   | 1.8  | 45.4   |   | 1.8  | 43.8  |   | 1.8  | 4.1  | J | 1.8  | 45.0   |     | 1.8  |   |
| Thallium                              | 0.5                      | ND  |   | 0.16 | ND   |   | 0.16 | ND   |   | 0.16 | ND  |   | 0.16 | ND   |   | 0.16 | ND   |     | 0.16 |   |

| Analyte                              | Cleanup Standard* (µg/L) | CLIENT ID: MW-2D<br>LAB ID: 9018256<br>COLLECTION DATE: 5/26/2017<br>SAMPLE MATRIX: Groundwater<br>SAMPLE UNITS: µg/L |   |      | MW-3A<br>9015001<br>5/24/2017<br>Groundwater<br>µg/L |   |      | MW-3B<br>9018251<br>5/25/2017<br>Groundwater<br>µg/L |   |      | MW-3C<br>9015002<br>5/24/2017<br>Groundwater<br>µg/L |   |      | MW-3D<br>9015005<br>5/24/2017<br>Groundwater<br>µg/L |   |      | MW-4S<br>9004694<br>5/19/2017<br>Groundwater<br>µg/L |   |      |
|--------------------------------------|--------------------------|---|---|------|--|---|------|--|---|------|--|---|------|--|---|------|--|---|------|
|                                      |                          | Result  | Q | MDL  | Result   | Q | MDL  | Result   | Q | MDL  | Result   | Q | MDL  | Result   | Q | MDL  | Result   | Q | MDL  |
| <i>Volatile Organic Compounds</i>    |                          |   |   |      |  |   |      |  |   |      |  |   |      |  |   |      |  |   |      |
| Carbon Tetrachloride                 | 5                        | ND  |   | 0.5  | ND   |   | 0.5  | ND   |   | 0.5  | ND   |   | 0.5  | ND   |   | 0.5  | ND   |   | 0.5  |
| 1,2-Dichloroethane                   | 5                        | ND  |   | 0.5  | ND   |   | 0.5  | ND   |   | 0.5  | ND   |   | 0.5  | ND   |   | 0.5  | ND   |   | 0.5  |
| 1,1-Dichloroethene                   | 7                        | 8   |   | 0.5  | 5  |   | 0.5  | 42   |   | 0.5  | 31   |   | 0.5  | 97   |   | 0.5  | ND   |   | 0.5  |
| cis-1,2-Dichloroethene               | 70                       | ND  |   | 0.5  | 10   |   | 0.5  | 18   |   | 0.5  | 15   |   | 0.5  | 6  |   | 0.5  | ND   |   | 0.5  |
| Tetrachloroethene                    | 5                        | ND  |   | 0.5  | 140  |   | 0.5  | 6  |   | 0.5  | ND   |   | 0.5  | 4  |   | 0.5  | ND   |   | 0.5  |
| Trichloroethene                      | 5                        | 16  |   | 0.5  | 81   |   | 0.5  | 300  |   | 0.5  | 58   |   | 0.5  | 270  |   | 0.5  | ND   |   | 0.5  |
| Vinyl Chloride                       | 2                        | ND  |   | 0.5  | ND   |   | 0.5  | ND   |   | 0.5  | ND   |   | 0.5  | ND   |   | 0.5  | ND   |   | 0.5  |
| <i>Semiolatile Organic Compounds</i> |                          |   |   |      |  |   |      |  |   |      |  |   |      |  |   |      |  |   |      |
| 1,4-Dioxane                          | 6.1                      | ND  |   | 2    | 4  |   | 1    | 8  |   | 1    | 5  |   | 1    | 10   |   | 1    | ND   |   | 1    |
| <i>Dissolved Metals</i>              |                          |   |   |      |  |   |      |  |   |      |  |   |      |  |   |      |  |   |      |
| Antimony                             | 6                        | ND  |   | 0.48 | ND   |   | 0.48 | ND   |   | 0.48 | 0.52   | J | 0.48 | ND   |   | 0.48 | ND   |   | 0.48 |
| Arsenic                              | 10                       | 11  |   | 0.68 | 0.8  | J | 0.68 | 2.0  | J | 0.68 | 4.5  |   | 0.68 | 11.0   |   | 0.68 | ND   |   | 0.68 |
| Manganese                            | 217                      | 45.4  |   | 1.8  | ND   |   | 1.8  | ND   |   | 1.8  | 16.7   |   | 1.8  | 51.0   |   | 1.8  | 33.8   |   | 1.8  |
| Thallium                             | 0.5                      | ND  |   | 0.16 | ND   |   | 0.16 | ND   |   | 0.16 | ND   |   | 0.16 | ND   |   | 0.16 | ND   |   | 0.16 |

## Notes:

\* Cleanup Standard as listed in Record of Decision.

\*\* Dup-052217 collected at MW-1D

\*\*\*DUP-052217 collected at MW-5XD

MDL: Method Detection Limit

Q: Lab Qualifier

J: Indicates an estimated value between the MDL and the Practical Quantitation Limit (PQL) for the analyte.

E: Result estimated because it exceeded the calibration range of the instrument

Bolded values indicate results greater than MDL.

Highlighted values indicate results exceed the cleanup standard.

ND: Not Detected

NS: Not Sampled

Table 1a

## Surface Water Sampling Results - May 2017

North Penn Area 2 Superfund Site

Hatfield Township, PA

| Analyte                               | Cleanup Standard* (µg/L) | CLIENT ID:<br>LAB ID:<br>COLLECTION DATE:<br>SAMPLE MATRIX:<br>SAMPLE UNITS: |   |      | MW-4D<br>8998610<br>5/16/2017<br>Groundwater<br>µg/L |   |      | MW-5S<br>9012381<br>5/23/2017<br>Groundwater<br>µg/L |   |      | MW-5I<br>9012382<br>5/23/2017<br>Groundwater<br>µg/L |   |      | MW-5D<br>9018253<br>5/25/2017<br>Groundwater<br>µg/L |   |      | MW-5XD<br>9012384<br>5/23/2017<br>Groundwater<br>µg/L |   |      | DUP-052217**<br>9012385<br>5/23/2017<br>Groundwater<br>µg/L |  |  |
|---------------------------------------|--------------------------|--|---|------|--|---|------|--|---|------|--|---|------|--|---|------|---|---|------|---|--|--|
|                                       |                          | Result   | Q | MDL  | Result   | Q | MDL  | Result   | Q | MDL  | Result   | Q | MDL  | Result   | Q | MDL  | Result  | Q | MDL  |   |  |  |
| <i>Volatile Organic Compounds</i>     |                          |  |   |      |  |   |      |  |   |      |  |   |      |  |   |      |   |   |      |   |  |  |
| Carbon Tetrachloride                  | 5                        | ND   |   | 0.5  | ND   |   | 0.5  | ND   |   | 0.5  | ND   |   | 0.5  | ND   |   | 0.5  | ND  |   | 0.5  |   |  |  |
| 1,2-Dichloroethane                    | 5                        | ND   |   | 0.5  | ND   |   | 0.5  | ND   |   | 0.5  | ND   |   | 0.5  | ND   |   | 0.5  | ND  |   | 0.5  |   |  |  |
| 1,1-Dichloroethene                    | 7                        | ND   |   | 0.5  | ND   |   | 0.5  | 40   |   | 0.5  | 36   |   | 0.5  | ND   |   | 0.5  | ND  |   | 0.5  |   |  |  |
| cis-1,2-Dichloroethene                | 70                       | ND   |   | 0.5  | 11   |   | 0.5  | 6  |   | 0.5  | 4  |   | 0.5  | ND   |   | 0.5  | ND  |   | 0.5  |   |  |  |
| Tetrachloroethene                     | 5                        | ND   |   | 0.5  | 7  |   | 0.5  | 10   |   | 0.5  | 4  |   | 0.5  | ND   |   | 0.5  | ND  |   | 0.5  |   |  |  |
| Trichloroethene                       | 5                        | ND   |   | 0.5  | 22   |   | 0.5  | 100  |   | 0.5  | 140  |   | 0.5  | ND   |   | 0.5  | ND  |   | 0.5  |   |  |  |
| Vinyl Chloride                        | 2                        | ND   |   | 0.5  | ND   |   | 0.5  | ND   |   | 0.5  | ND   |   | 0.5  | ND   |   | 0.5  | ND  |   | 0.5  |   |  |  |
| <i>Semivolatile Organic Compounds</i> |                          |  |   |      |  |   |      |  |   |      |  |   |      |  |   |      |   |   |      |   |  |  |
| 1,4-Dioxane                           | 6.1                      | ND   |   | 1    | ND   |   | 1    | 5  |   | 1    | 5  |   | 1    | ND   |   | 1    | ND  |   | 1    |   |  |  |
| <i>Dissolved Metals</i>               |                          |  |   |      |  |   |      |  |   |      |  |   |      |  |   |      |   |   |      |   |  |  |
| Antimony                              | 6                        | ND   |   | 0.48 | ND   |   | 0.48 | ND   |   | 0.48 | ND   |   | 0.48 | ND   |   | 0.48 | ND  |   | 0.48 |   |  |  |
| Arsenic                               | 10                       | 7.9  |   | 0.68 | 19.3   |   | 0.68 | 9.4  |   | 0.68 | 15.2   |   | 0.68 | 20.0   |   | 0.68 | 21.2  |   | 0.68 |   |  |  |
| Manganese                             | 217                      | 68.4   |   | 1.8  | 495  |   | 1.8  | 170.0  |   | 1.8  | 20.0   |   | 1.8  | 26.7   |   | 1.8  | 26.3  |   | 1.8  |   |  |  |
| Thallium                              | 0.5                      | ND   |   | 0.16 | ND   |   | 0.16 | ND   |   | 0.16 | ND   |   | 0.16 | ND   |   | 0.16 | ND  |   | 0.16 |   |  |  |

| Analyte                               | Cleanup Standard* (µg/L) | CLIENT ID:<br>LAB ID:<br>COLLECTION DATE:<br>SAMPLE MATRIX:<br>SAMPLE UNITS: |   |      | MW-6S<br>9018250<br>5/25/2017<br>Groundwater<br>µg/L |   |        | MW-7S<br>9018252<br>5/25/2017<br>Groundwater<br>µg/L |   |      | MW-8S<br>8998609<br>5/16/2017<br>Groundwater<br>µg/L |   |      | MW-8D<br>8668611<br>5/16/2017<br>Groundwater<br>µg/L |   |      | MW-9I<br>9000945<br>5/17/2017<br>Groundwater<br>µg/L |   |      | MW-10S<br>9004690<br>5/19/2017<br>Groundwater<br>µg/L |  |  |
|---------------------------------------|--------------------------|--|---|------|--|---|--------|--|---|------|--|---|------|--|---|------|--|---|------|---|--|--|
|                                       |                          | Result   | Q | MDL  | Result   | Q | MDL    | Result   | Q | MDL  | Result   | Q | MDL  | Result   | Q | MDL  | Result   | Q | MDL  |   |  |  |
| <i>Volatile Organic Compounds</i>     |                          |  |   |      |  |   |        |  |   |      |  |   |      |  |   |      |  |   |      |   |  |  |
| Carbon Tetrachloride                  | 5                        | ND   |   | 0.5  | ND   |   | 0.5    | ND   |   | 0.5  | ND   |   | 0.5  | ND   |   | 0.5  | ND   |   | 0.5  |   |  |  |
| 1,2-Dichloroethane                    | 5                        | ND   |   | 0.5  | ND   |   | 0.5    | ND   |   | 0.5  | ND   |   | 0.5  | ND   |   | 0.5  | ND   |   | 0.5  |   |  |  |
| 1,1-Dichloroethene                    | 7                        | ND   |   | 0.5  | ND   |   | 0.5    | ND   |   | 0.5  | 2  |   | 0.5  | ND   |   | 0.5  | ND   |   | 0.5  |   |  |  |
| cis-1,2-Dichloroethene                | 70                       | 0.9  | J | 0.5  | ND   |   | 0.5    | ND   |   | 0.5  | ND   |   | 0.5  | ND   |   | 0.5  | ND   |   | 0.5  |   |  |  |
| Tetrachloroethene                     | 5                        | ND   |   | 0.5  | ND   |   | 0.5    | ND   |   | 0.5  | ND   |   | 0.5  | ND   |   | 0.5  | ND   |   | 0.5  |   |  |  |
| Trichloroethene                       | 5                        | 17   |   | 0.5  | 2  |   | 0.5    | ND   |   | 0.5  | ND   |   | 0.5  | ND   |   | 0.5  | 0.7  | J | 0.5  |   |  |  |
| Vinyl Chloride                        | 2                        | ND   |   | 0.5  | ND   |   | 0.5    | ND   |   | 0.5  | ND   |   | 0.5  | ND   |   | 0.5  | ND   |   | 0.5  |   |  |  |
| <i>Semivolatile Organic Compounds</i> |                          |  |   |      |  |   |        |  |   |      |  |   |      |  |   |      |  |   |      |   |  |  |
| 1,4-Dioxane                           | 6.1                      | 1  | J | 1    | ND   |   | 1      | ND   |   | 1    | ND   |   | 1    | ND   |   | 1    | ND   |   | 1    |   |  |  |
| <i>Dissolved Metals</i>               |                          |  |   |      |  |   |        |  |   |      |  |   |      |  |   |      |  |   |      |   |  |  |
| Antimony                              | 6                        | ND   |   | 0.48 | ND   |   | 0.48   | ND   |   | 0.48 | ND   |   | 0.48 | ND   |   | 0.48 | ND   |   | 0.48 |   |  |  |
| Arsenic                               | 10                       | 1.9  | J | 0.68 | ND   |   | 0.68   | 3.8  |   | 0.68 | 2.3  |   | 0.68 | 3.3  |   | 0.68 | ND   |   | 0.68 |   |  |  |
| Manganese                             | 217                      | 45.9   |   | 1.8  | ND   |   | 0.0018 | 139  |   | 1.8  | 47.8   |   | 1.8  | ND   |   | 1.8  | 52.8   |   | 1.8  |   |  |  |
| Thallium                              | 0.5                      | ND   |   | 0.16 | ND   |   | 0.16   | ND   |   | 0.16 | ND   |   | 0.16 | ND   |   | 0.16 | ND   |   | 0.16 |   |  |  |

## Notes:

\* Cleanup Standard as listed in Record of Decision.

\*\* Dup-052217 collected at MW-1D

\*\*\*DUP-052217 collected at MW-5XD

MDL: Method Detection Limit

Q: Lab Qualifier

J: Indicates an estimated value between the MDL and the Practical Quantitation Limit (PQL) for the analyte.

E: Result estimated because it exceeded the calibration range of the instrument

Bolded values indicate results greater than MDL.

Highlighted values indicate results exceed the cleanup star

ND: Not Detected

NS: Not Sampled

Table 1a

## Surface Water Sampling Results - May 2017

North Penn Area 2 Superfund Site

Hatfield Township, PA

| Analyte                               | Cleanup Standard* (µg/L) | CLIENT ID:<br>LAB ID:<br>COLLECTION DATE:<br>SAMPLE MATRIX:<br>SAMPLE UNITS: |   |      | MW-10I<br>9004691<br>5/19/2017<br>Groundwater<br>µg/L |   |      | MW-10D<br>9004692<br>5/19/2017<br>Groundwater<br>µg/L |   |      | MW-11A<br>9000942<br>5/17/2017<br>Groundwater<br>µg/L |   |      | MW-11B<br>9000944<br>5/17/2017<br>Groundwater<br>µg/L |   |      | MW-11C<br>9000946<br>5/17/2017<br>Groundwater<br>µg/L |   |      | MW-12A<br>9015003<br>5/24/2017<br>Groundwater<br>µg/L |  |  |
|---------------------------------------|--------------------------|--|---|------|---|---|------|---|---|------|---|---|------|---|---|------|---|---|------|---|--|--|
|                                       |                          | Result   | Q | MDL  | Result  | Q | MDL  | Result  | Q | MDL  | Result  | Q | MDL  | Result  | Q | MDL  | Result  | Q | MDL  |   |  |  |
| <i>Volatile Organic Compounds</i>     |                          |  |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |  |  |
| Carbon Tetrachloride                  | 5                        | ND   |   | 0.5  | ND  |   | 0.5  | ND  |   | 0.5  | ND  |   | 0.5  | ND  |   | 0.5  | ND  |   | 0.5  |   |  |  |
| 1,2-Dichloroethane                    | 5                        | ND   |   | 0.5  | ND  |   | 0.5  | ND  |   | 0.5  | ND  |   | 0.5  | ND  |   | 0.5  | ND  |   | 0.5  |   |  |  |
| 1,1-Dichloroethene                    | 7                        | ND   |   | 0.5  | ND  |   | 0.5  | ND  |   | 0.5  | ND  |   | 0.5  | ND  |   | 0.5  | ND  |   | 0.5  |   |  |  |
| cis-1,2-Dichloroethene                | 70                       | ND   |   | 0.5  | ND  |   | 0.5  | ND  |   | 0.5  | ND  |   | 0.5  | ND  |   | 0.5  | ND  |   | 0.5  |   |  |  |
| Tetrachloroethene                     | 5                        | ND   |   | 0.5  | ND  |   | 0.5  | ND  |   | 0.5  | ND  |   | 0.5  | ND  |   | 0.5  | ND  |   | 0.5  |   |  |  |
| Trichloroethene                       | 5                        | ND   |   | 0.5  | ND  |   | 0.5  | ND  |   | 0.5  | J   |   | 0.5  | ND  |   | 0.5  | ND  |   | 0.5  |   |  |  |
| Vinyl Chloride                        | 2                        | ND   |   | 0.5  | ND  |   | 0.5  | ND  |   | 0.5  | ND  |   | 0.5  | ND  |   | 0.5  | ND  |   | 0.5  |   |  |  |
| <i>Semivolatile Organic Compounds</i> |                          |  |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |  |  |
| 1,4-Dioxane                           | 6.1                      | ND   |   | 1    | ND  |   | 1    | ND  |   | 1    | ND  |   | 1    | ND  |   | 1    | ND  |   | 1    |   |  |  |
| <i>Dissolved Metals</i>               |                          |  |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |  |  |
| Antimony                              | 6                        | ND   |   | 0.48 | ND  |   | 0.48 | ND  |   | 0.48 | ND  |   | 0.48 | ND  |   | 0.48 | ND  |   | 0.48 |   |  |  |
| Arsenic                               | 10                       | 8.4  |   | 0.68 | 4.7   |   | 0.68 | 0.79  | J | 0.68 | 0.77  | J | 0.68 | 3.3   |   | 0.68 | 1.3   | J | 0.68 |   |  |  |
| Manganese                             | 217                      | 112  |   | 1.8  | 53.3  |   | 1.8  | ND  |   | 1.8  | 4.6   | J | 1.8  | 3.5   | J | 1.8  | ND  |   | 1.8  |   |  |  |
| Thallium                              | 0.5                      | ND   |   | 0.16 | ND  |   | 0.16 | ND  |   | 0.16 | ND  |   | 0.16 | ND  |   | 0.16 | ND  |   | 0.16 |   |  |  |

| Analyte                               | Cleanup Standard* (µg/L) | CLIENT ID:<br>LAB ID:<br>COLLECTION DATE:<br>SAMPLE MATRIX:<br>SAMPLE UNITS: |   |      | MW-12B<br>9015004<br>5/24/2017<br>Groundwater<br>µg/L |   |      | MW-13S<br>9004685<br>5/18/2017<br>Groundwater<br>µg/L |   |      | MW-13I<br>9004686<br>5/18/2017<br>Groundwater<br>µg/L |   |      | MW-13D<br>9004687<br>5/18/2017<br>Groundwater<br>µg/L |   |      | MW-14I<br>9000943<br>5/18/2017<br>Groundwater<br>µg/L |   |      | PW-3<br>8998613<br>5/16/2017<br>Groundwater<br>µg/L |  |  |
|---------------------------------------|--------------------------|--|---|------|---|---|------|---|---|------|---|---|------|---|---|------|---|---|------|---|--|--|
|                                       |                          | Result   | Q | MDL  | Result  | Q | MDL  | Result  | Q | MDL  | Result  | Q | MDL  | Result  | Q | MDL  | Result  | Q | MDL  |   |  |  |
| <i>Volatile Organic Compounds</i>     |                          |  |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |  |  |
| Carbon Tetrachloride                  | 5                        | ND   |   | 0.5  | ND  |   | 0.5  | ND  |   | 0.5  | ND  |   | 0.5  | ND  |   | 0.5  | ND  |   | 0.5  |   |  |  |
| 1,2-Dichloroethane                    | 5                        | ND   |   | 0.5  | ND  |   | 0.5  | ND  |   | 0.5  | ND  |   | 0.5  | ND  |   | 0.5  | ND  |   | 0.5  |   |  |  |
| 1,1-Dichloroethene                    | 7                        | ND   |   | 0.5  | ND  |   | 0.5  | ND  |   | 0.5  | ND  |   | 0.5  | ND  |   | 0.5  | ND  |   | 0.5  |   |  |  |
| cis-1,2-Dichloroethene                | 70                       | ND   |   | 0.5  | ND  |   | 0.5  | ND  |   | 0.5  | ND  |   | 0.5  | ND  |   | 0.5  | ND  |   | 0.5  |   |  |  |
| Tetrachloroethene                     | 5                        | ND   |   | 0.5  | ND  |   | 0.5  | ND  |   | 0.5  | ND  |   | 0.5  | ND  |   | 0.5  | ND  |   | 0.5  |   |  |  |
| Trichloroethene                       | 5                        | ND   |   | 0.5  | ND  |   | 0.5  | ND  |   | 0.5  | ND  |   | 0.5  | ND  |   | 0.5  | ND  |   | 0.5  |   |  |  |
| Vinyl Chloride                        | 2                        | ND   |   | 0.5  | ND  |   | 0.5  | ND  |   | 0.5  | ND  |   | 0.5  | ND  |   | 0.5  | ND  |   | 0.5  |   |  |  |
| <i>Semivolatile Organic Compounds</i> |                          |  |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |  |  |
| 1,4-Dioxane                           | 6.1                      | ND   |   | 1    | ND  |   | 1    | ND  |   | 1    | ND  |   | 1    | ND  |   | 1    | ND  |   | 1    |   |  |  |
| <i>Dissolved Metals</i>               |                          |  |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |   |      |   |  |  |
| Antimony                              | 6                        | ND   |   | 0.48 | ND  |   | 0.48 | ND  |   | 0.48 | ND  |   | 0.48 | ND  |   | 0.48 | ND  |   | 0.48 |   |  |  |
| Arsenic                               | 10                       | 5.5  |   | 0.68 | 1.1   | J | 0.68 | 7.5   |   | 0.68 | 15.1  |   | 0.68 | 4.5   |   | 0.68 | 3.0   |   | 0.68 |   |  |  |
| Manganese                             | 217                      | 30.6   |   | 1.8  | 62.5  |   | 1.8  | 58.4  |   | 1.8  | 17.8  |   | 1.8  | ND  |   | 1.8  | 40.3  |   | 1.8  |   |  |  |
| Thallium                              | 0.5                      | ND   |   | 0.16 | ND  |   | 0.16 | ND  |   | 0.16 | ND  |   | 0.16 | ND  |   | 0.16 | ND  |   | 0.16 |   |  |  |

## Notes:

\* Cleanup Standard as listed in Record of Decision.

\*\* Dup-052217 collected at MW-1D

\*\*\*DUP-052217 collected at MW-5XD

MDL: Method Detection Limit

Q: Lab Qualifier

J: Indicates an estimated value between the MDL and the Practical Quantitation Limit (PQL) for the analyte.

E: Result estimated because it exceeded the calibration range of the instrument

**Bolded** values indicate results greater than MDL.

Highlighted values indicate results exceed the cleanup star

ND: Not Detected

NS: Not Sampled

Table 1a

Surface Water Sampling Results - May 2017

North Penn Area 2 Superfund Site

Hatfield Township, PA

| CLIENT ID:                            | PCGW-2                   |             |   |      |
|---------------------------------------|--------------------------|-------------|---|------|
| LAB ID:                               | 9012383                  |             |   |      |
| COLLECTION DATE:                      | 5/23/2017                |             |   |      |
| SAMPLE MATRIX:                        | Groundwater              |             |   |      |
| SAMPLE UNITS:                         | µg/L                     |             |   |      |
| Analyte                               | Cleanup Standard* (µg/L) | Result      | Q | MDL  |
| <i>Volatile Organic Compounds</i>     |                          |             |   |      |
| Carbon Tetrachloride                  | 5                        | ND          |   | 0.5  |
| 1,2-Dichloroethane                    | 5                        | ND          |   | 0.5  |
| 1,1-Dichloroethene                    | 7                        | ND          |   | 0.5  |
| cis-1,2-Dichloroethene                | 70                       | ND          |   | 0.5  |
| Tetrachloroethene                     | 5                        | ND          |   | 0.5  |
| Trichloroethene                       | 5                        | ND          |   | 0.5  |
| Vinyl Chloride                        | 2                        | ND          |   | 0.5  |
| <i>Semivolatile Organic Compounds</i> |                          |             |   |      |
| 1,4-Dioxane                           | 6.1                      | ND          |   | 1    |
| <i>Dissolved Metals</i>               |                          |             |   |      |
| Antimony                              | 6                        | ND          |   | 0.48 |
| Arsenic                               | 10                       | <b>3.8</b>  |   | 0.68 |
| Manganese                             | 217                      | <b>45.8</b> |   | 1.8  |
| Thallium                              | 0.5                      | ND          |   | 0.16 |

| CLIENT ID:                            | PCGW-3                   |             |   |      |
|---------------------------------------|--------------------------|-------------|---|------|
| LAB ID:                               | 8668612                  |             |   |      |
| COLLECTION DATE:                      | 5/16/2017                |             |   |      |
| SAMPLE MATRIX:                        | Groundwater              |             |   |      |
| SAMPLE UNITS:                         | µg/L                     |             |   |      |
| Analyte                               | Cleanup Standard* (µg/L) | Result      | Q | MDL  |
| <i>Volatile Organic Compounds</i>     |                          |             |   |      |
| Carbon Tetrachloride                  | 5                        | ND          |   | 0.5  |
| 1,2-Dichloroethane                    | 5                        | ND          |   | 0.5  |
| 1,1-Dichloroethene                    | 7                        | ND          |   | 0.5  |
| cis-1,2-Dichloroethene                | 70                       | ND          |   | 0.5  |
| Tetrachloroethene                     | 5                        | ND          |   | 0.5  |
| Trichloroethene                       | 5                        | ND          |   | 0.5  |
| Vinyl Chloride                        | 2                        | ND          |   | 0.5  |
| <i>Semivolatile Organic Compounds</i> |                          |             |   |      |
| 1,4-Dioxane                           | 6.1                      | ND          |   | 1    |
| <i>Dissolved Metals</i>               |                          |             |   |      |
| Antimony                              | 6                        | ND          |   | 0.48 |
| Arsenic                               | 10                       | <b>0.97</b> | J | 0.68 |
| Manganese                             | 217                      | <b>77.9</b> |   | 1.8  |
| Thallium                              | 0.5                      | ND          |   | 0.16 |

## Notes:

\* Cleanup Standard as listed in Record of Decision.

\*\* Dup-052217 collected at MW-1D

\*\*\*DUP-052217 collected at MW-5XD

MDL: Method Detection Limit

Q: Lab Qualifier

J: Indicates an estimated value between the MDL and the Practical Quantitation Limit (PQL) for the analyte.

E: Result estimated because it exceeded the calibration range of the instrument

Bolded values indicate results greater than MDL.

Highlighted values indicate results exceed the cleanup star

ND: Not Detected

NS: Not Sampled

Table 1b

## Groundwater Sampling Results - November 2017

North Penn Area 2 Superfund Site

Hatfield Township, Pennsylvania

| Analyte                           | Cleanup Standard*<br>( $\mu\text{g}/\text{L}$ ) | PW-3<br>9320339<br>11/15/2017<br>Groundwater<br>$\mu\text{g}/\text{L}$ |   |     | MW-2<br>9320340<br>11/15/2017<br>Groundwater<br>$\mu\text{g}/\text{L}$ |   |     | MW-9I<br>9320333<br>11/15/2017<br>Groundwater<br>$\mu\text{g}/\text{L}$ |   |     | MW-14I<br>9320334<br>11/15/2017<br>Groundwater<br>$\mu\text{g}/\text{L}$ |   |     |
|-----------------------------------|---|--|---|-----|--|---|-----|---|---|-----|--|---|-----|
|                                   |   | Result   | Q | MDL | Result   | Q | MDL | Result  | Q | MDL | Result   | Q | MDL |
| <i>Volatile Organic Compounds</i> |   |  |   |     |  |   |     |   |   |     |  |   |     |
| Carbon Tetrachloride              | 5   | ND   |   | 0.5 | ND   |   | 3   | ND  |   | 0.5 | ND   |   | 0.5 |
| 1,2-Dichloroethane                | 5   | ND   |   | 0.5 | ND   |   | 3   | ND  |   | 0.5 | ND   |   | 0.5 |
| 1,1- Dichloroethene               | 7   | <b>210</b>   |   | 0.5 | <b>1,200</b>   |   | 3   | ND  |   | 0.5 | ND   |   | 0.5 |
| cis-1,2-Dichloroethene            | 70  | <b>12</b>  |   | 0.5 | <b>42</b>  |   | 3   | ND  |   | 0.5 | ND   |   | 0.5 |
| Tetrachloroethene                 | 5   | <b>58</b>  |   | 0.5 | <b>48</b>  |   | 3   | ND  |   | 0.5 | ND   |   | 0.5 |
| Trichloroethene                   | 5   | <b>540</b>   |   | 5   | <b>2,800</b>   |   | 25  | ND  |   | 0.5 | ND   |   | 0.5 |
| Vinyl Chloride                    | 2   | ND   |   | 0.5 | ND   |   | 3   | ND  |   | 0.5 | ND   |   | 0.5 |

| Analyte                           | Cleanup Standard*<br>( $\mu\text{g}/\text{L}$ ) | MW-13D<br>9320337<br>11/15/2017<br>Groundwater<br>$\mu\text{g}/\text{L}$ |   |     | MW-13I<br>9320336<br>11/15/2017<br>Groundwater<br>$\mu\text{g}/\text{L}$ |   |     | MW-13S<br>9320335<br>11/15/2017<br>Groundwater<br>$\mu\text{g}/\text{L}$ |   |     |
|-----------------------------------|---|--|---|-----|--|---|-----|--|---|-----|
|                                   |   | Result   | Q | MDL | Result   | Q | MDL | Result   | Q | MDL |
| <i>Volatile Organic Compounds</i> |   |  |   |     |  |   |     |  |   |     |
| Carbon Tetrachloride              | 5   | ND   |   | 0.5 | ND   |   | 0.5 | ND   |   | 0.5 |
| 1,2-Dichloroethane                | 5   | ND   |   | 0.5 | ND   |   | 0.5 | ND   |   | 0.5 |
| 1,1- Dichloroethene               | 7   | ND   |   | 0.5 | ND   |   | 0.5 | ND   |   | 0.5 |
| cis-1,2-Dichloroethene            | 70  | ND   |   | 0.5 | ND   |   | 0.5 | ND   |   | 0.5 |
| Tetrachloroethene                 | 5   | ND   |   | 0.5 | ND   |   | 0.5 | ND   |   | 0.5 |
| Trichloroethene                   | 5   | ND   |   | 0.5 | ND   |   | 0.5 | ND   |   | 0.5 |
| Vinyl Chloride                    | 2   | ND   |   | 0.5 | ND   |   | 0.5 | ND   |   | 0.5 |

## Notes:

\*Cleanup Standard as listed in Record of Decision

MDL: Medium Detection Limit

Q: Lab Qualifier

All units in microgram per liter ( $\mu\text{g}/\text{L}$ )

J: Indicates an estimated value between the MDL and the Practical Quantitation Limit (PQL) for the analyte.

**Bolded** values indicate results greater than MDL.

Highlighted values indicate results exceed the cleanup standard.

ND: Not Detected

**Table 2a****Surface Water Sampling Results - May 2017**

North Penn Area 2 Superfund Site

Hatfield Township, PA

| Analyte                    | CLIENT ID:                     | SMP-0          |   |          | SMP-1          |   |          | SMP-2         |   |          | SMP-3         |   |          |
|----------------------------|--------------------------------|----------------|---|----------|----------------|---|----------|---------------|---|----------|---------------|---|----------|
|                            | LAB ID:                        | 8993365        |   |          | 8993362        |   |          | 8993360       |   |          | 8993358       |   |          |
|                            | COLLECTION DATE:               | 5/15/2017      |   |          | 5/15/2017      |   |          | 5/15/2017     |   |          | 5/15/2017     |   |          |
|                            | SAMPLE MATRIX:                 | Surface Water  |   |          | Surface Water  |   |          | Surface Water |   |          | Surface Water |   |          |
|                            | SAMPLE UNITS:                  | µg/L           |   |          | µg/L           |   |          | µg/L          |   |          | µg/L          |   |          |
|                            | Surface Water Criteria* (µg/L) |                |   |          |                |   |          |               |   |          |               |   |          |
| Volatile Organic Compounds |                                | Result         | Q | MDL      | Result         | Q | MDL      | Result        | Q | MDL      | Result        | Q | MDL      |
| Carbon Tetrachloride       | 0.23                           | ND             |   | 0.1      | ND             |   | 0.1      | ND            |   | 0.1      | ND            |   | 0.1      |
| 1,2-Dichloroethane         | 0.38                           | ND             |   | 0.1      | ND             |   | 0.1      | ND            |   | 0.1      | ND            |   | 0.1      |
| 1,1-Dichloroethene         | 33                             | ND             |   | 0.1      | ND             |   | 0.1      | ND            |   | 0.1      | ND            |   | 0.1      |
| Tetrachloroethene          | 0.69                           | ND             |   | 0.1      | ND             |   | 0.1      | ND            |   | 0.1      | ND            |   | 0.1      |
| Trichloroethene            | 2.5                            | ND             |   | 0.1      | ND             |   | 0.1      | ND            |   | 0.1      | ND            |   | 0.1      |
| Vinyl Chloride             | 0.025                          | ND             |   | 0.010    | ND             |   | 0.010    | ND            |   | 0.010    | <b>0.017</b>  | J | 0.010    |
| Metals                     |                                | Result         | Q | MDL      | Result         | Q | MDL      | Result        | Q | MDL      | Result        | Q | MDL      |
| Chromium                   | NA**                           | ND             |   | 0.0018   | ND             |   | 0.0018   | ND            |   | 0.0018   | ND            |   | 0.0018   |
| Trivalent Chromium waters  | 101                            | ND             |   | 0.010    | ND             |   | 0.010    | ND            |   | 0.010    | ND            |   | 0.010    |
| Cadmium                    | 0.32                           | ND             |   | 0.00019  | ND             |   | 0.00019  | ND            |   | 0.00019  | ND            |   | 0.00019  |
| Antimony                   | 5.6                            | ND             |   | 0.48     | ND             |   | 0.48     | ND            |   | 0.48     | ND            |   | 0.48     |
| Arsenic                    | 10                             | ND             |   | 0.68     | ND             |   | 0.68     | ND            |   | 0.68     | ND            |   | 0.68     |
| Lead                       | 3.79                           | <b>0.00015</b> | J | 0.000090 | <b>0.00011</b> | J | 0.000090 | <b>0.0001</b> | J | 0.000090 | <b>0.0001</b> | J | 0.000090 |
| Thallium                   | 0.24                           | ND             |   | 0.16     | ND             |   | 0.16     | ND            |   | 0.16     | ND            |   | 0.16     |
| Hexavalent Chromium        | **                             | ND             |   | 0.010    | ND             |   | 0.010    | ND            |   | 0.010    | ND            |   | 0.010    |
| Zinc, Total                | 163                            | ND             |   | 0.0054   | ND             |   | 0.0054   | ND            |   | 0.0054   | ND            |   | 0.0054   |

**Notes:**

\* Criteria are the lower value of the Fish and Aquatic Life Continuous Criteria and the Human Health Criteria. See Table 1 in Remedial Action Sampling and Analysis Plan.

\*\* Chromium III = Total Chromium - Hexavalent Chromium. Calculation performed by the laboratory.

Only Chromium III is needed for the site requirements

MDL: Method Detection Limit

Q: Lab Qualifier

J: Indicates an estimated value between the MDL and the Practical Quantitation Limit (PQL) for the analyte.

Bold values indicate results greater than MDL.

Highlighted values indicate results exceed the cleanup standard.

ND: Not Detected

NS: Not Sampled

**Table 2b****Surface Water Sampling Results - November 2017**

North Penn Area 2 Superfund Site

Hatfield Township, PA

|                                   | CLIENT ID:<br>LAB ID:<br>COLLECTION DATE:<br>SAMPLE MATRIX:<br>SAMPLE UNITS: | SMP-0<br>9328101<br>11/20/2017<br>Surface Water<br>µg/L | SMP-1<br>9328103<br>11/20/2017<br>Surface Water<br>µg/L | SMP-2<br>9328105<br>11/20/2017<br>Surface Water<br>µg/L | SMP-3<br>9328107<br>11/20/2017<br>Surface Water<br>µg/L |    |      |              |    |      |
|-----------------------------------|--|---|---|---|---|----|------|--------------|----|------|
| Analyte                           |  | Result Q MDL  | Result Q MDL  | Result Q MDL  | Result Q MDL  |    |      |              |    |      |
| <b>Volatile Organic Compounds</b> |  |   |   |   |   |    |      |              |    |      |
| Carbon Tetrachloride              | 0.23   | ND  |   | 0.1   | ND  |    | 0.1  | ND           |    | 0.1  |
| 1,2-Dichloroethane                | 0.38   | ND  |   | 0.1   | ND  |    | 0.1  | ND           |    | 0.1  |
| 1,1-Dichloroethene                | 33   | ND  | Q1  | 0.1   | ND  | Q1 | 0.1  | ND           | Q1 | 0.1  |
| Tetrachloroethene                 | 0.69   | ND  |   | 0.1   | ND  |    | 0.1  | ND           |    | 0.1  |
| Trichloroethene                   | 2.5  | ND  |   | 0.1   | ND  |    | 0.1  | ND           |    | 0.1  |
| Vinyl Chloride                    | 0.025  | ND  |   | 0.01  | ND  |    | 0.01 | <b>0.014</b> | J  | 0.01 |
| <b>Metals</b>                     |  |   |   |   |   |    |      |              |    |      |
| Chromium                          | NA**   | ND  |   | 1.8   | ND  |    | 1.8  | ND           |    | 1.8  |
| Trivalent Chromium waters         | 101  | ND  |   | 10  | ND  |    | 10   | ND           |    | 10   |
| Cadmium                           | 0.32   | ND  |   | 5.4   | ND  |    | 5.4  | ND           |    | 5.4  |
| Antimony                          | 5.6  | ND  |   | 0.19  | ND  |    | 0.19 | ND           |    | 0.19 |
| Arsenic                           | 10   | ND  |   | 0.09  | ND  |    | 0.09 | <b>0.26</b>  | J  | 0.09 |
| Lead                              | 3.79   | ND  |   | 0.48  | ND  |    | 0.48 | ND           |    | 0.48 |
| Thallium                          | 0.24   | ND  |   | 9.7   | ND  |    | 9.7  | ND           |    | 9.7  |
| Hexavalent Chromium               | **   | ND  |   | 0.16  | ND  |    | 0.16 | ND           |    | 0.16 |
| Zinc, Total                       | 163  | ND  |   | 10  | ND  |    | 10   | ND           |    | 10   |

Notes:

\* Criteria are the lower value of the Fish and Aquatic Life Continuous Criteria and the Human Health Criteria. See Table 1 in Remedial Action Sampling and Analysis Plan.

\*\* Chromium III = Total Chromium - Hexavalent Chromium. Calculation performed by the laboratory.

Only Chromium III is needed for the site requirements

MDL: Method Detection Limit

Q: Lab Qualifier

J: Indicates an estimated value between the MDL and the Practical Quantitation Limit (PQL) for the analyte.

Bold values indicate results greater than MDL.

Highlighted values indicate results exceed the cleanup standard.

ND: Not Detected

NS: Not Sampled

**Table 3**  
**Performance Data for PW-1 and PW-3 Operation**  
**North Penn Area 2 Superfund Site**  
**Hatfield Township, Pennsylvania**  
**Updated 7 December 2017**

| Date and Time         | Totalizer<br>Reading (gal) | Total Flow<br>(gal) | Average Flow<br>for Period<br>(gpm) | Average Flow<br>for Period<br>(gpd) | Total VOC<br>Conc in Well<br>(ug/l) | Cumulative<br>Pounds<br>VOCs<br>Removed | Efficiency -<br>Pounds<br>removed/<br>100K gal | Removal<br>Rate -<br>Pounds/<br>year @ 20,000 gpd |
|-----------------------|----------------------------|---------------------|-------------------------------------|-------------------------------------|-------------------------------------|---|--|---|
| <b>PW-1 Operation</b> |                            |                     |                                     |                                     |                                     |   |  |   |
| 01/01/01 12:00        |                            |                     |                                     |                                     |                                     |   |  |   |
| 04/28/02 14:00        |                            | 9,641,700           | 13.9                                | 20,000                              | <b>809</b>                          | 65                                      | 0.7  | 49  |
| <b>PW-3 Operation</b> |                            |                     |                                     |                                     |                                     |   |  |   |
| 12/14/02 15:56        | 3,470,840                  | 5,945,840           | 14.8                                | 21,326                              | 4,170                               | 240                                     | 3.5  | 254   |
| 12/04/03 11:00        | 10,897,332                 | 13,372,332          | 14.0                                | 20,138                              | <b>3,351</b>                        | 472                                     | 2.8  | 204   |
| 12/21/04 08:30        | 18,837,960                 | 21,312,960          | 14.0                                | 20,171                              | 1,619                               | 627                                     | 1.4  | 99  |
| 11/07/05 16:03        | 25,622,360                 | 28,097,360          | 15.3                                | 21,978                              | 1,602                               | 727                                     | 1.3  | 98  |
| 12/18/06 08:00        | 3,147,400                  | 36,874,830          | 30.1                                | 43,276                              | 2,000                               | 846                                     | 1.7  | 122   |
| 12/10/07 10:04        | 10,148,650                 | 43,876,080          | 12.2                                | 17,556                              | <b>1,618</b>                        | 965                                     | 1.4  | 99  |
| 12/11/08 10:27        | 6,734,020                  | 51,983,032          | 14.5                                | 20,828                              | <b>869</b>                          | 1,050                                   | 0.7  | 53  |
| 11/30/09 07:45        | 4,145,450                  | 59,125,462          | 14.1                                | 20,356                              | 981                                 | 1,110                                   | 0.8  | 60  |
| 12/23/10 15:01        | 1,820,650                  | 67,867,920          | 17.4                                | 25,049                              | 659                                 | 1,171                                   | 0.5  | 40  |
| 12/15/11 09:35        | 4,307,990                  | 76,695,207          | 17.4                                | 25,125                              | <b>725</b>                          | 1,221                                   | 0.6  | 44  |
| 12/13/12 08:28        | 2,264,504                  | 84,044,677          | 14.1                                | 20,321                              | 693                                 | 1,261                                   | 0.6  | 42  |
| 12/22/15 09:20        | 23,608,432                 | 105,388,605         | 13.0                                | 18,650                              | 753                                 | 1,396                                   | 0.6  | 46  |
| 12/06/16 07:30        | 30,673,869                 | 112,454,042         | 13.9                                | 20,014                              | <b>730</b>                          | 1,444                                   | 0.6  | 44  |
| 01/04/17 09:00        | 31,258,844                 | 113,039,017         | 14.0                                | 20,128                              | 830                                 | 1,448                                   | 0.7  | 51  |
| 02/01/17 12:21        | 31,818,909                 | 113,599,082         | 13.8                                | 19,903                              | 830                                 | 1,452                                   | 0.7  | 51  |
| 03/02/17 13:30        | 32,400,467                 | 114,180,640         | 13.9                                | 20,021                              | 830                                 | 1,456                                   | 0.7  | 51  |
| 03/28/17 15:00        | 32,912,652                 | 114,692,825         | 13.6                                | 19,652                              | 830                                 | 1,459                                   | 0.7  | 51  |
| 05/04/17 12:00        | 33,793,236                 | 115,573,409         | 16.6                                | 23,880                              | <b>929</b>                          | 1,466                                   | 0.8  | 57  |
| 06/05/17 13:53        | 34,496,674                 | 116,276,847         | 15.2                                | 21,929                              | 875                                 | 1,471                                   | 0.7  | 53  |
| 07/06/17 12:41        | 35,178,601                 | 116,958,774         | 15.3                                | 22,033                              | 875                                 | 1,476                                   | 0.7  | 53  |
| 08/03/17 12:45        | 35,786,605                 | 117,566,778         | 15.1                                | 21,712                              | 875                                 | 1,481                                   | 0.7  | 53  |
| 09/07/17 08:45        | 36,539,015                 | 118,319,188         | 15.0                                | 21,600                              | 875                                 | 1,486                                   | 0.7  | 53  |
| 10/10/17 13:13        | 37,163,428                 | 118,943,601         | 13.1                                | 18,815                              | 875                                 | 1,491                                   | 0.7  | 53  |
| 11/01/17 13:45        | 37,603,944                 | 119,384,117         | 13.9                                | 20,003                              | <b>820</b>                          | 1,494                                   | 0.7  | 50  |
| 12/07/17 10:30        | 38,320,799                 | 120,100,972         | 13.9                                | 19,988                              | 820                                 | 1,499                                   | 0.7  | 50  |

#### Key Dates

3/18/10 - Pump pulled and cleaned; new Totalizer/Flow Meter installed.  
 3/18/10 cont. - End reading = 6,208,500 gal; new meter start at 0 gal.  
 5/20/10 - Replaced liquid (non-motor) end of the pump (Goulds 18GS07).  
 9/9/10 - Penn Color reported the pump stopped working in the morning.  
 9/15/10 - Installed new pump (Goulds 18GS10422C, 1hp). Replaced pump control box with 15A breaker and enclosure (previous control box not rated for 1hp motor).  
 10/19/10 - Flow meter problem observed.  
 10/21/10 - New totalizer/flow meter installed. End reading = 4,858,758; New meter start at 0 gal.  
 4/8/11 - Due to site transformer problem disrupting electric power supply to pump, pump did not operate for approx. 1 day.  
 5/17/11 - PW-3 sampled during Remedial Design groundwater monitoring event. Value listed in table on 5/16/11 date.  
 6/22/11 - New totalizer/flow meter installed. End reading = 6,339,947; New meter start at 0 gal.  
 6/19/12 - New flow meter and automated system installed (RA implementation). End reading = 8,158,592 gal; New meter start at 0 gal.  
 8/30/12 - Data indicate pump did not operate 7/18/12 17:35 through 7/23/12 08:50, or 7/26/12 19:20 through 7/27/12 11:05. Alerts programming issues still being investigated.  
 8/30/12 - Flow meter total reset to 0 gal. End reading prior to reset = 1,234,364 gal.  
 11/8/12 - The October reading was delayed due to Hurricane Sandy.  
 10/7/13 - The pump was cleaned to try to increase the flow rate.  
 12/29/13 - The pump stopped working.  
 1/8/14 - Removed old pump and riser pipe. Riser pipe restricted due to buildup. Identified the need for 3-phase motor.  
 1/10/14 - Installed new pump (Goulds 18GS10422C, 1hp, with 3-phase 230V motor CentriPro M10432 100C313) and new 1" 160 psi black poly riser pipe.  
 12/26/14 - 12/30/14 - Pump shut down due to full bag filter on Penn E&R treatment system.  
 2/27/15 - The pump had been shut down for a period of time due to full bag filter on Penn E&R treatment system.  
 3/10/15 - Replaced pump motor (Goulds 18GS10, serial # A1549302) and riser pipe. Pump set at 100' bgs.  
 3/29/16 - Replaced pump wet end (Goulds 18GS10, 8 stage, 4", 1HP), not the motor, and riser pipe. Pump set at 100' bgs.  
 3/28/17 - Replaced pump wet end (Goulds 18GS10, 8 stage, 4", 1HP), not the motor, and riser pipe. Pump set at 100' bgs.

#### Total VOC Concentration Basis

Values in **bold** are actual sample results.  
 Values for dates between samples are the average of the two samples.  
 Values after the most recent sample date are roll-forward values  
 and will be updated once the next sample result is obtained.

Notes: Results from 6/1/05 through 12/15/11 include Freon 113 (typically <10 ug/l) and TCFM (typically <20 ug/l) which were not previously included in total VOCs.  
 For 2002 - 2014, spreadsheet rows compressed (hidden) to show only last data for the year in order to save space on table, but all data are preserved.

**Table 4**  
**Performance Data for MW-2 Operation**  
**North Penn Area 2 Superfund Site**  
**Hatfield Township, Pennsylvania**  
**Updated 7 December 2017**

| Date and Time         | Pump Cycle Count | Total Flow (gal) · 0.07 gal/cycle | Average Flow for Period (gpm) | Average Flow for Period (gpd) | Total VOC Conc in Well (ug/l) | Cumulative Pounds VOCs removed | Efficiency - Pounds removed/ 100K gal | Removal Rate - Pounds/ year @ 400 gpd |
|-----------------------|------------------|-----------------------------------|-------------------------------|-------------------------------|-------------------------------|--------------------------------|---------------------------------------|---------------------------------------|
| <b>MW-2 Operation</b> |                  |                                   |                               |                               |                               |                                |                                       |                                       |
| 12/21/04 08:30        | 1,600,000        | 112000                            | 0.403                         | 581                           | 19,528                        | 17.5                           | 16.3                                  | 24                                    |
| 11/07/05 16:03        | 3,412,970        | 238908                            | 0.513                         | 739                           | 15,150                        | 40.2                           | 12.6                                  | 18                                    |
| 12/18/06 08:00        | 6,997,105        | 489797                            | 0.069                         | 99                            | 14,205                        | 68.8                           | 11.9                                  | 17                                    |
| 12/10/07 10:14        | 6,997,131        | 489799                            | 0.000                         | 0                             | 14,205                        | 68.8                           | 0.0                                   |                                       |
| 12/11/08 10:24        | 9,324,448        | 552645                            | 0.612                         | 882                           | <b>10,120</b>                 | 78.9                           | 8.4                                   | 12                                    |
| 11/30/09 07:42        | 11,333,363       | 693269                            | 0.241                         | 347                           | 16,266                        | 91.4                           | 13.6                                  | 20                                    |
| 11/17/10 09:16        | 12,952,765       | 806627                            | 0.007                         | 10                            | <b>9,357</b>                  | 105.0                          | 7.8                                   | 11                                    |
| 12/23/10 15:01        | 13,040,011       | 812734                            | 0.107                         | 154                           | 9,531                         | 105.5                          | 8.0                                   | 12                                    |
| 12/15/11 09:35        | 14,454,676       | 911761                            | 0.537                         | 773                           | <b>11,822</b>                 | 114.0                          | 9.9                                   | 14                                    |
| 12/13/12 08:28        | 17,751,367       | 1142529                           | 0.481                         | 693                           | 10,889                        | 130.2                          | 9.1                                   | 13                                    |
| 12/19/13 09:42        | 21,099,680       | 1376911                           | 0.425                         | 612                           | 15,413                        | 158.4                          | 12.9                                  | 19                                    |
| 12/30/14 09:38        | 23,758,563       | 1563033                           | 0.381                         | 549                           | 10,822                        | 180.2                          | 9.0                                   | 13                                    |
| 12/22/15 09:20        | 969,132          | 1630876                           | 0.175                         | 251                           | 4,392                         | 184.3                          | 3.7                                   | 5                                     |
| 12/06/16 07:30        | 2,928,310        | 1768018                           | 0.232                         | 334                           | <b>2,327</b>                  | 188.4                          | 1.9                                   | 3                                     |
| 01/04/17 09:00        | 3,066,551        | 1777695                           | 0.231                         | 333                           | 3,622                         | 188.8                          | 3.0                                   | 4                                     |
| 02/01/17 12:21        | 3,258,898        | 1791160                           | 0.281                         | 405                           | 3,622                         | 189.1                          | 3.0                                   | 4                                     |
| 03/02/17 13:30        | 3,444,412        | 1804146                           | 0.321                         | 463                           | 3,622                         | 189.6                          | 3.0                                   | 4                                     |
| 03/28/17 15:00        | 3,626,184        | 1816870                           | 0.324                         | 467                           | 3,622                         | 189.8                          | 3.0                                   | 4                                     |
| 05/04/17 12:00        | 3,887,983        | 1835196                           | 0.343                         | 493                           | <b>4,917</b>                  | 190.9                          | 4.1                                   | 6                                     |
| 06/05/17 13:53        | 4,089,099        | 1849274                           | 0.326                         | 470                           | 4,504                         | 191.1                          | 3.8                                   | 5                                     |
| 07/06/17 12:41        | 4,288,375        | 1863223                           | 0.309                         | 445                           | 4,504                         | 191.9                          | 3.8                                   | 5                                     |
| 08/03/17 12:45        | 4,465,184        | 1875600                           | 0.310                         | 447                           | 4,504                         | 192.0                          | 3.8                                   | 5                                     |
| 09/07/17 08:45        | 4,681,357        | 1890732                           | 0.304                         | 438                           | 4,504                         | 192.9                          | 3.8                                   | 5                                     |
| 10/10/17 13:13        | 4,888,537        | 1905234                           | 0.303                         | 436                           | 4,504                         | 193.2                          | 3.8                                   | 5                                     |
| 11/01/17 13:45        | 5,037,399        | 1915655                           | 0.313                         | 451                           | <b>4,090</b>                  | 193.8                          | 3.4                                   | 5                                     |
| 12/07/17 10:30        | 5,265,210        | 1931601                           | 0.316                         | 455                           | 4,090                         | 194.1                          | 3.4                                   | 5                                     |

#### Key Dates

1/27/10 - Pump was shut down by Penn Color for previous 36 hours, due to rain flooding event.  
 3/18/10 - Pump pulled and cleaned; replaced pressure gage.  
 9/15/10 - Pump pulled and cleaned.  
 10/15/10 - Pump reading indicated pump no functioning.  
 10/21/10 - Pump inspected and determined to be unfixable.  
 11/8/10 - Replacement pump installed (QED AP2B Short).  
 5/17/11 - MW-2 sampled during Remedial Design groundwater monitoring event. Value listed in table on 5/16/11 date.  
 6/22/11 - Pump operating but reading not obtained; so used average of adjacent table values.  
 9/27/11 - Pump operating but reading not obtained; so used average of adjacent table values.  
 6/19/12 - Pump operating but reading not obtained; so used average of adjacent table values.  
 11/8/12 - The October reading was delayed due to Hurricane Sandy.  
 4/7/15 - Replaced cycle counter. It was discovered to have been malfunctioning since sometime in January, though the pump had been operating correctly.

#### Total VOC Concentration Basis

Values in **bold** are actual sample results.  
 Values for dates between samples are the average of the two samples.  
 Values after the most recent sample date are roll-forward values  
 and will be updated once the next sample result is obtained.

Notes: Results from 6/1/05 on include Freon 113 (7 ug/l) and TCFM (19 ug/l) which were not previously included in total VOCs.  
 For 2002 - 2014 spreadsheet rows compressed (hidden) to show only last data for the year in order to save space on table, but all data are preserved.

**Table 5**  
**Performance Data for All Recovery Wells**  
**North Penn Area 2 Superfund Site**  
**Hatfield Township, Pennsylvania**  
**Updated 7 December 2017**

| Pumps Operated           | Date and Time  | Cumulative Pounds VOCs Removed | % of VOCs Removed | Estimated Pounds VOCs Remaining | Average Flow for Period (gpd) |
|--------------------------|----------------|--------------------------------|-------------------|---------------------------------|-------------------------------|
|                          |                |                                |                   | Total Flow                      |                               |
| <b>PW-1</b>              | 01/01/01 12:00 |                                |                   | 2,576                           |                               |
|                          | 04/28/02 14:00 | 65                             | 2.6%              | 2,511                           | 20,000                        |
| <b>PW-3</b>              | 04/29/02 14:00 |                                |                   | 2,511                           |                               |
|                          | 12/14/02 15:56 | 240                            | 9.6%              | 2,271                           | 21,326                        |
|                          | 12/04/03 11:00 | 472                            | 18.8%             | 2,039                           | 20,138                        |
| <b>PW-3 &amp; MW-2</b>   | 08/16/04 12:10 | 593                            | 23.6%             | 1,918                           | 22,605                        |
|                          | 12/21/04 08:30 | 644                            | 25.7%             | 1,867                           | 20,751                        |
|                          | 11/07/05 16:03 | 767                            | 30.5%             | 1,744                           | 22,717                        |
|                          | 12/18/06 08:00 | 915                            | 36.4%             | 1,596                           | 37,364,627                    |
|                          | 12/10/07 10:04 | 1,034                          | 41.2%             | 1,477                           | 44,365,879                    |
|                          | 12/11/08 10:27 | 1,129                          | 45.0%             | 1,382                           | 52,535,677                    |
|                          | 11/30/09 07:45 | 1,201                          | 47.8%             | 1,310                           | 59,818,731                    |
|                          | 12/23/10 15:01 | 1,277                          | 50.9%             | 1,234                           | 68,680,654                    |
|                          | 12/15/11 09:35 | 1,335                          | 53.2%             | 1,176                           | 77,606,968                    |
|                          | 12/13/12 08:28 | 1,392                          | 55.4%             | 1,119                           | 85,187,206                    |
|                          | 12/19/13 09:42 | 1,464                          | 58.3%             | 1,047                           | 92,182,486                    |
|                          | 12/30/14 09:38 | 1,535                          | 61.1%             | 976                             | 100,019,560                   |
|                          | 12/22/15 09:20 | 1,581                          | 62.9%             | 930                             | 107,019,481                   |
|                          | 12/06/16 07:30 | 1,632                          | 65.0%             | 879                             | 114,222,060                   |
|                          | 01/04/17 09:00 | 1,637                          | 65.2%             | 874                             | 114,816,712                   |
|                          | 02/01/17 12:21 | 1,641                          | 65.3%             | 870                             | 115,390,242                   |
|                          | 03/02/17 13:30 | 1,645                          | 65.5%             | 866                             | 115,984,786                   |
|                          | 03/28/17 15:00 | 1,649                          | 65.7%             | 862                             | 116,509,695                   |
|                          | 05/04/17 12:00 | 1,657                          | 66.0%             | 854                             | 117,408,605                   |
|                          | 06/05/17 13:53 | 1,662                          | 66.2%             | 849                             | 118,126,121                   |
|                          | 07/06/17 12:41 | 1,668                          | 66.4%             | 843                             | 118,821,997                   |
|                          | 08/03/17 12:45 | 1,673                          | 66.6%             | 838                             | 119,442,378                   |
|                          | 09/07/17 08:45 | 1,679                          | 66.9%             | 832                             | 120,209,920                   |
|                          | 10/10/17 13:13 | 1,684                          | 67.1%             | 827                             | 120,848,835                   |
|                          | 11/01/17 13:45 | 1,688                          | 67.2%             | 823                             | 121,299,772                   |
|                          | 12/07/17 10:30 | 1,693                          | 67.4%             | 818                             | 122,032,573                   |
| Average (~last 6 months) |                |                                |                   |                                 | 21,132                        |

Notes: For 2002 - 2015 spreadsheet rows compressed to show only last data for the year in order to save space on table, but all data are preserved.

8/30/12 - PW-3 flow meter reading/programming issue.

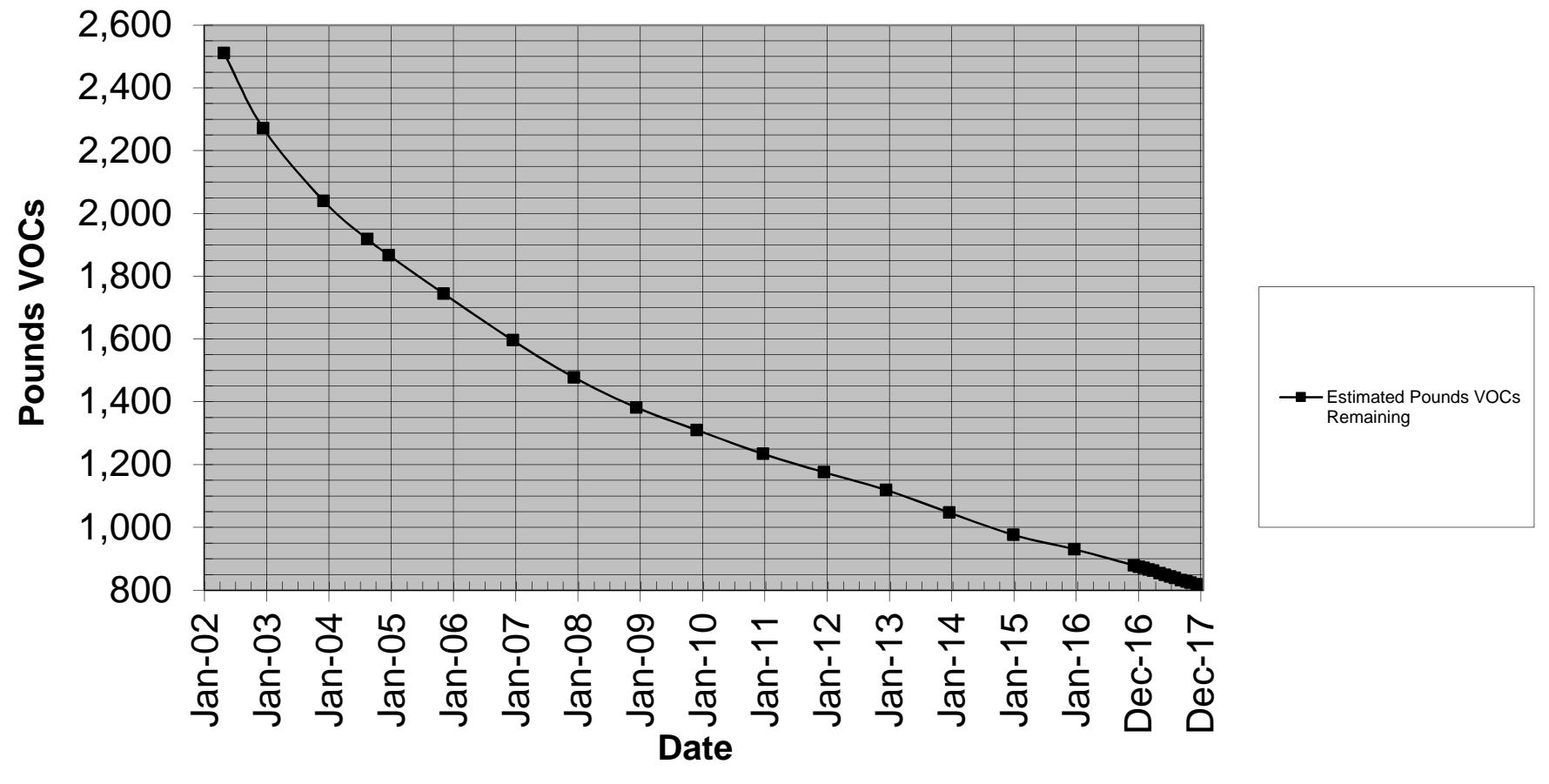
**Table 6a**  
**Water Level Data - March 2017**  
**North Penn Area 2 Superfund Site**  
**Hatfield Township, Pennsylvania**

| Date      | Well   | Top of Casing Elevation (ft amsl) | Depth to Water (ft below top of inner casing) | Water Level Elevation (ft amsl) | Notes                                       |
|-----------|--------|-----------------------------------|---|---------------------------------|---|
| 5/15/2017 | MW-1   | 354.34                            | 13.87   | 340.47                          |   |
| 5/15/2017 | MW-1I  | 354.3                             | 14.33   | 339.97                          |   |
| 5/15/2017 | MW-1D  | 354.22                            | 16.49   | 337.73                          |   |
| 5/15/2017 | MW-2   | 355.33                            | --  | --                              | Not collected                               |
| 5/15/2017 | MW-2I  | 353.13                            | 18.22   | 334.91                          |   |
| 5/15/2017 | MW-2D  | 353.38                            | 18.83   | 334.55                          |   |
| 5/15/2017 | MW-3A  | 348.72                            | 14.27   | 334.45                          |   |
| 5/15/2017 | MW-3B  | 353.18                            | 18.75   | 334.43                          |   |
| 5/15/2017 | MW-3C  | 348.59                            | 14.77   | 333.82                          |   |
| 5/15/2017 | MW-3D  | 348.88                            | 12.54   | 336.34                          |   |
| 5/15/2017 | MW-4S  | 354.5                             | 11.82   | 342.68                          |   |
| 5/15/2017 | MW-4D  | 353.51                            | 10.92   | 342.59                          |   |
| 5/15/2017 | MW-5   | 346.68                            | 10.46   | 336.22                          |   |
| 5/15/2017 | MW-5I  | 348.84                            | 12.40   | 336.44                          |   |
| 5/15/2017 | MW-5D  | 349.12                            | 12.65   | 336.47                          |   |
| 5/15/2017 | MW-5XD | 348.73                            | 12.62   | 336.11                          |   |
| 5/15/2017 | MW-6   | 347.23                            | 10.36   | 336.87                          |   |
| 5/15/2017 | MW-7   | 350.28                            | 9.84  | 340.44                          |   |
| 5/15/2017 | MW-8S  | 362.72                            | 7.82  | 354.90                          |   |
| 5/15/2017 | MW-8D  | 363.08                            | 7.64  | 355.44                          |   |
| 5/15/2017 | MW-9S  | 347.64                            | 4.02  | 343.62                          |   |
| 5/15/2017 | MW-9I  | 348.63                            | 5.02  | 343.61                          |   |
| 5/15/2017 | MW-9D  | 347.99                            | 4.40  | 343.59                          |   |
| 5/15/2017 | MW-10S | 354.29                            | 13.07   | 341.22                          |   |
| 5/15/2017 | MW-10I | 355.13                            | 13.33   | 341.80                          |   |
| 5/15/2017 | MW-10D | 354.66                            | 14.63   | 340.03                          |   |
| 5/15/2017 | MW-11A | 344.14                            | 3.85  | 340.29                          |   |
| 5/15/2017 | MW-11B | 344.2                             | 3.99  | 340.21                          |   |
| 5/15/2017 | MW-11C | 343.89                            | 4.11  | 339.78                          |   |
| 5/15/2017 | MW-12A | 355.31                            | 10.51   | 344.80                          |   |
| 5/15/2017 | MW-12B | 354.91                            | 9.44  | 345.47                          |   |
| 5/15/2017 | MW-13S | 341.78                            | 7.27  | 334.51                          |   |
| 5/15/2017 | MW-13I | 340.89                            | 6.16  | 334.73                          |   |
| 5/15/2017 | MW-13D | 342.2                             | 5.73  | 336.47                          |   |
| 5/15/2017 | MW-14S | 351.91                            | 8.23  | 343.68                          |   |
| 5/15/2017 | MW-14I | 351.79                            | 8.26  | 343.53                          |   |
| 5/15/2017 | MW-14D | 351.51                            | 9.06  | 342.45                          |   |
| 5/15/2017 | PCGW-2 | 355.91                            | 18.12   | 337.79                          |   |
| 5/15/2017 | PCGW-3 | 353.97                            | 8.23  | 345.74                          |   |
| 5/15/2017 | PW-3   | 353.47                            | --  | --                              | Not Collected                               |
| 5/15/2017 | SMP-0  | 342.29                            | 0.84  | 341.45                          | Reading relative to stream monitoring point |
| 5/15/2017 | SMP-1A | 338.47                            | -0.09   | 338.56                          | Reading relative to stream monitoring point |
| 5/15/2017 | SMP-1B | 338.21                            | -0.34   | 338.55                          | Reading relative to stream monitoring point |
| 5/15/2017 | SMP-2A | 334.53                            | -0.25   | 334.78                          | Reading relative to stream monitoring point |
| 5/15/2017 | SMP-2B | 334.56                            | --  | --                              | Reading relative to stream monitoring point |
| 5/15/2017 | SMP-3  | 335.12                            | 1.88  | 333.24                          | Reading relative to stream monitoring point |

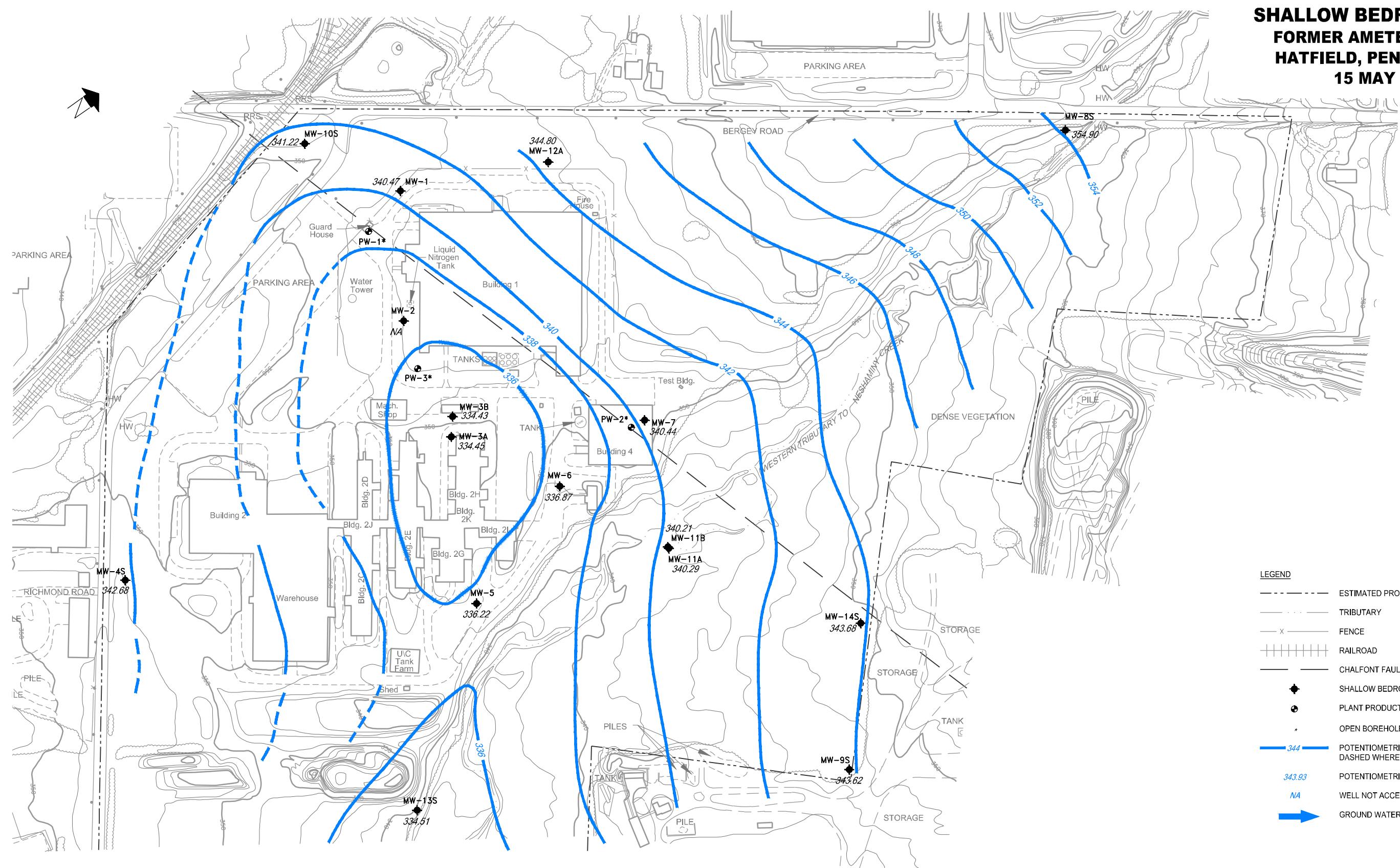
**Table 6b**  
**Water Level Data - November 2017**  
**North Penn Area 2 Superfund Site**  
**Hatfield Township, Pennsylvania**

| Date       | Well   | Top of Casing Elevation (ft amsl) | Depth to Water (ft below top of inner casing) | Water Level Elevation (ft amsl) | Notes                                       |
|------------|--------|-----------------------------------|---|---------------------------------|---|
| 11/15/2017 | MW-1   | 354.34                            | 15.16   | 339.18                          |   |
| 11/15/2017 | MW-11  | 354.3                             | 14.90   | 339.40                          |   |
| 11/15/2017 | MW-1D  | 354.22                            | 17.26   | 336.96                          |   |
| 11/15/2017 | MW-2   | 355.33                            | --  | --                              | Not collected                               |
| 11/15/2017 | MW-2I  | 353.13                            | 18.38   | 334.75                          |   |
| 11/15/2017 | MW-2D  | 353.38                            | 18.92   | 334.46                          |   |
| 11/15/2017 | MW-3A  | 348.72                            | 14.23   | 334.49                          |   |
| 11/15/2017 | MW-3B  | 353.18                            | 18.76   | 334.42                          |   |
| 11/15/2017 | MW-3C  | 348.59                            | 14.76   | 333.83                          |   |
| 11/15/2017 | MW-3D  | 348.88                            | 12.92   | 335.96                          |   |
| 11/15/2017 | MW-4S  | 354.5                             | 13.40   | 341.10                          |   |
| 11/15/2017 | MW-4D  | 353.51                            | 12.43   | 341.08                          |   |
| 11/15/2017 | MW-5   | 346.68                            | 11.02   | 335.66                          |   |
| 11/15/2017 | MW-5I  | 348.84                            | 12.89   | 335.95                          |   |
| 11/15/2017 | MW-5D  | 349.12                            | 13.16   | 335.96                          |   |
| 11/15/2017 | MW-5XD | 348.73                            | 12.98   | 335.75                          |   |
| 11/15/2017 | MW-6   | 347.23                            | 10.88   | 336.35                          |   |
| 11/15/2017 | MW-7   | 350.28                            | 10.88   | 339.40                          |   |
| 11/15/2017 | MW-8S  | 362.72                            | 9.14  | 353.58                          |   |
| 11/15/2017 | MW-8D  | 363.08                            | 9.18  | 353.90                          |   |
| 11/15/2017 | MW-9S  | 347.64                            | 6.28  | 341.36                          |   |
| 11/15/2017 | MW-9I  | 348.63                            | 7.60  | 341.03                          |   |
| 11/15/2017 | MW-9D  | 347.99                            | 6.59  | 341.40                          |   |
| 11/15/2017 | MW-10S | 354.29                            | 14.76   | 339.53                          |   |
| 11/15/2017 | MW-10I | 355.13                            | 16.65   | 338.48                          |   |
| 11/15/2017 | MW-10D | 354.66                            | 16.10   | 338.56                          |   |
| 11/15/2017 | MW-11A | 344.14                            | 5.08  | 339.06                          |   |
| 11/15/2017 | MW-11B | 344.2                             | 5.19  | 339.01                          |   |
| 11/15/2017 | MW-11C | 343.89                            | 5.32  | 338.57                          |   |
| 11/15/2017 | MW-12A | 355.31                            | 11.57   | 343.74                          |   |
| 11/15/2017 | MW-12B | 354.91                            | 10.21   | 344.70                          |   |
| 11/15/2017 | MW-13S | 341.78                            | 7.93  | 333.85                          |   |
| 11/15/2017 | MW-13I | 340.89                            | 6.80  | 334.09                          |   |
| 11/15/2017 | MW-13D | 342.2                             | 6.79  | 335.41                          |   |
| 11/15/2017 | MW-14S | 351.91                            | 10.55   | 341.36                          |   |
| 11/15/2017 | MW-14I | 351.79                            | 10.96   | 340.83                          |   |
| 11/15/2017 | MW-14D | 351.51                            | 10.76   | 340.75                          |   |
| 11/15/2017 | PCGW-2 | 355.91                            | 20.34   | 335.57                          |   |
| 11/15/2017 | PCGW-3 | 353.97                            | --  | --                              | Not collected                               |
| 11/15/2017 | PW-3   | 353.47                            | 20.34   | --                              | Not Collected                               |
| 11/15/2017 | SMP-0  | 342.29                            | 1.08  | 341.21                          | Reading relative to stream monitoring point |
| 11/15/2017 | SMP-1A | 338.47                            | -0.5  | 338.97                          | Reading relative to stream monitoring point |
| 11/15/2017 | SMP-1B | 338.21                            | -2.63   | 340.83                          | Reading relative to stream monitoring point |
| 11/15/2017 | SMP-2A | 334.53                            | 0.25  | 334.28                          | Reading relative to stream monitoring point |
| 11/15/2017 | SMP-2B | 334.56                            | --  | --                              | Reading relative to stream monitoring point |
| 11/15/2017 | SMP-3  | 335.12                            | 1.88  | 333.24                          | Reading relative to stream monitoring point |

Figure A  
North Penn Area 2 Superfund Site



**FIGURE 1**  
**POTENIOMETRIC SURFACE MAP**  
**SHALLOW BEDROCK WELLS**  
**FORMER AMETEK FACILITY**  
**HATFIELD, PENNSYLVANIA**  
**15 MAY 2017**

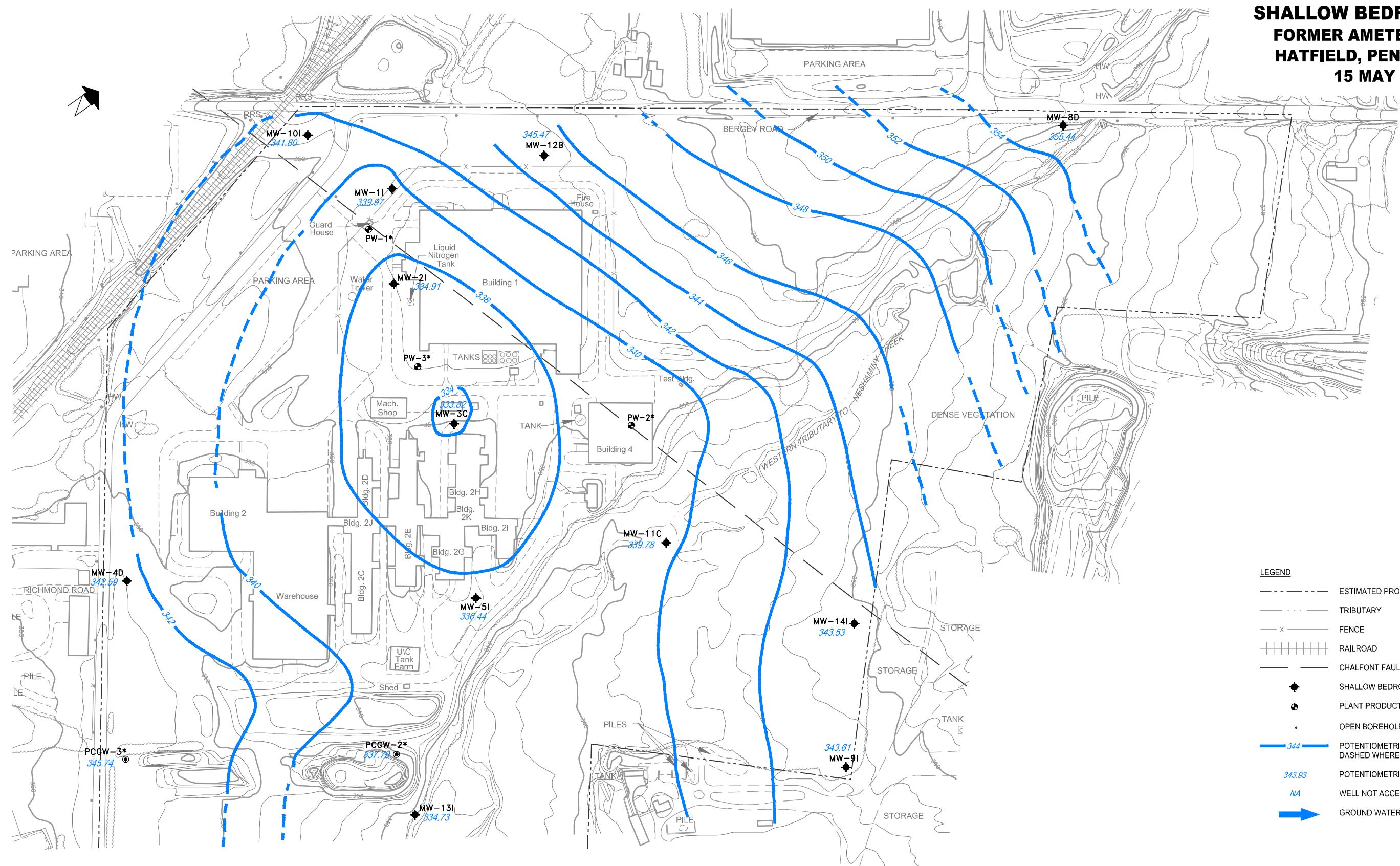


**LEGEND**

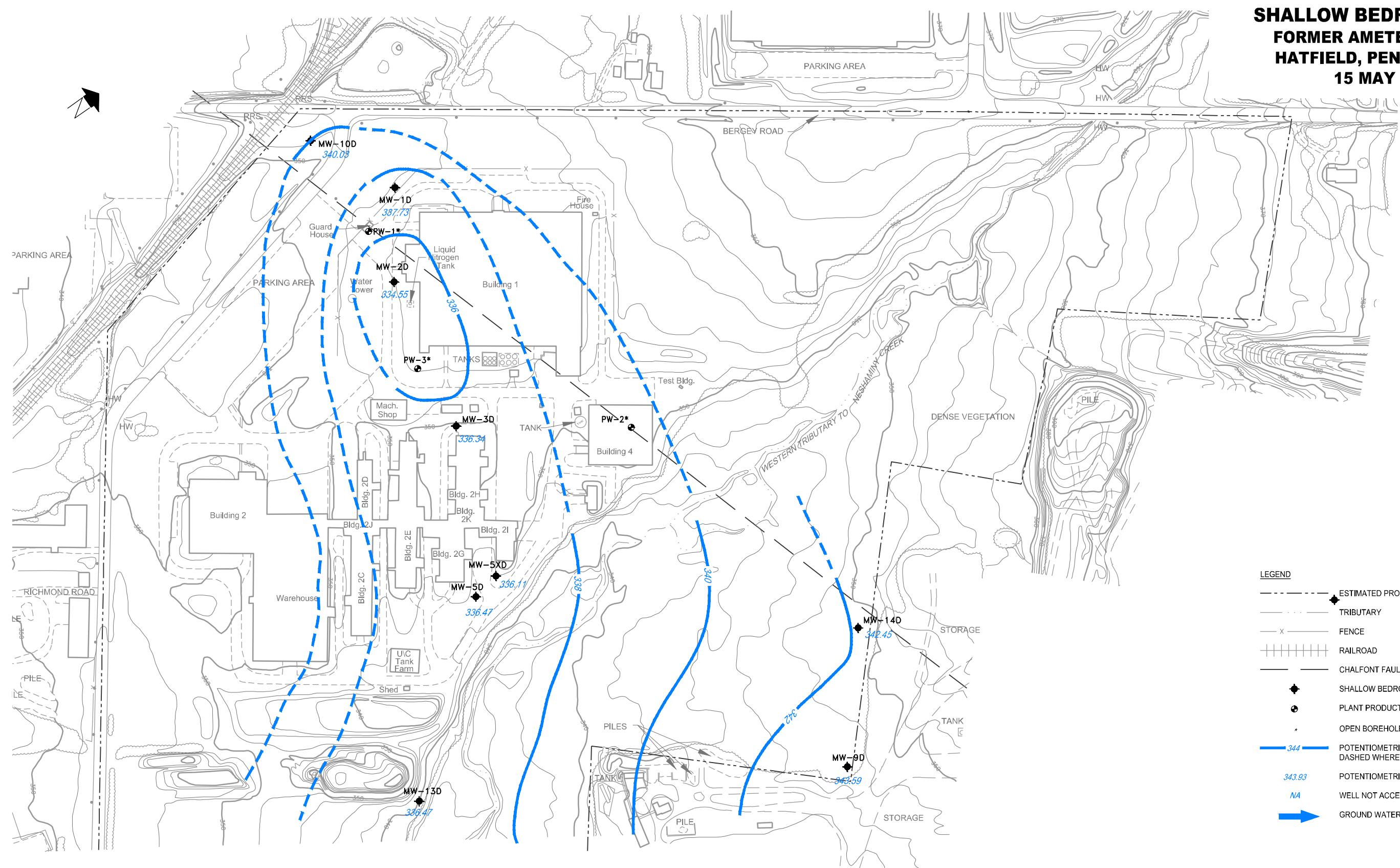
- ESTIMATED PROPERTY BOUNDARY
- TRIBUTARY
- FENCE
- RAILROAD
- CHALFONT FAULT
- SHALLOW BEDROCK WELL
- PLANT PRODUCTION WELL
- OPEN BOREHOLE WELL
- POTENIOMETRIC SURFACE CONTOUR (FEET MSL, DASHED WHERE INFERRED)
- POTENIOMETRIC SURFACE ELEVATION (FEET MSL)
- WELL NOT ACCESSIBLE FOR MEASUREMENT
- GROUND WATER FLOW DIRECTION

250 125 0 250  
SCALE IN FEET

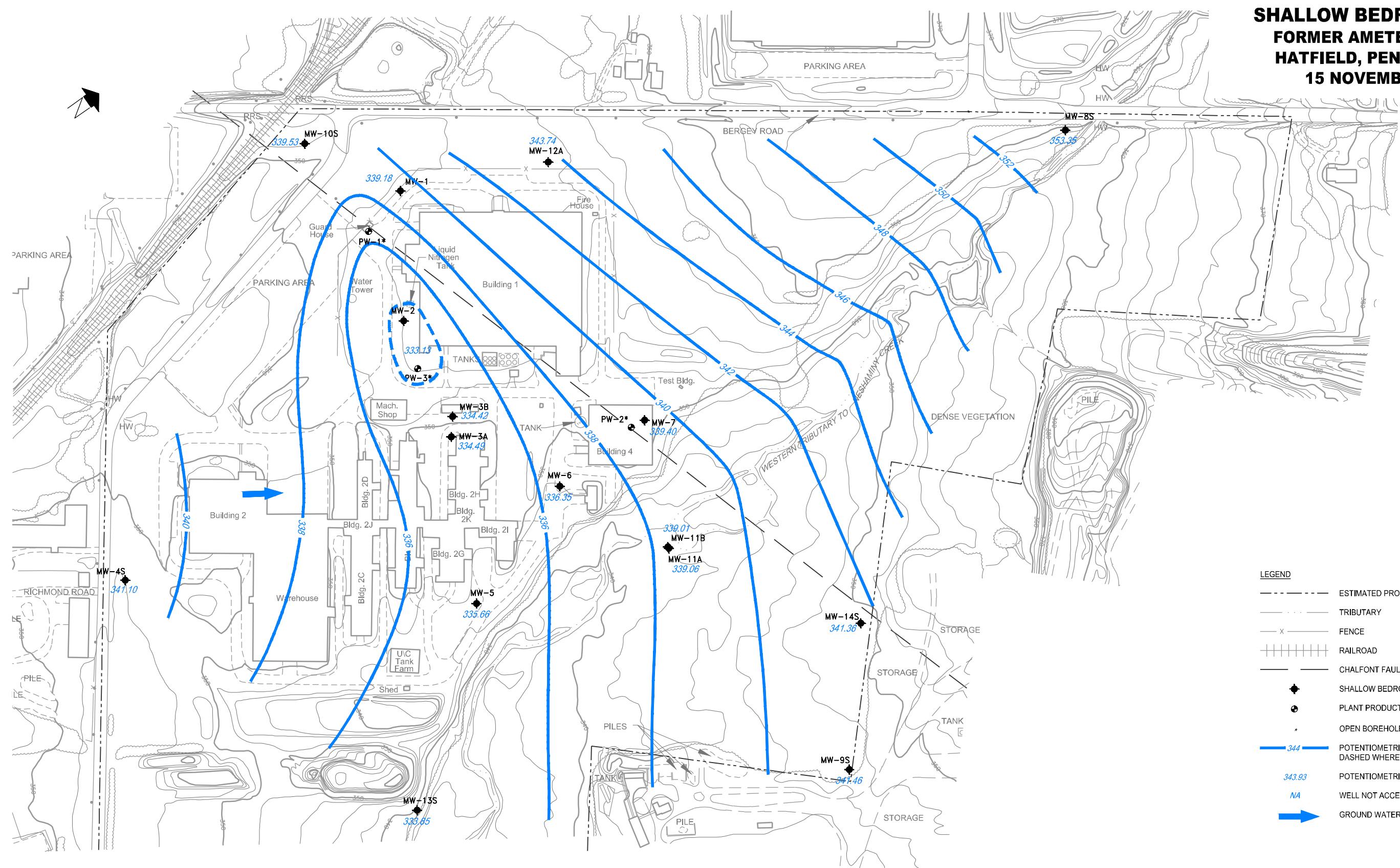
**FIGURE 2**  
**POTENIOMETRIC SURFACE MAP**  
**SHALLOW BEDROCK WELLS**  
**FORMER AMETEK FACILITY**  
**HATFIELD, PENNSYLVANIA**  
**15 MAY 2017**



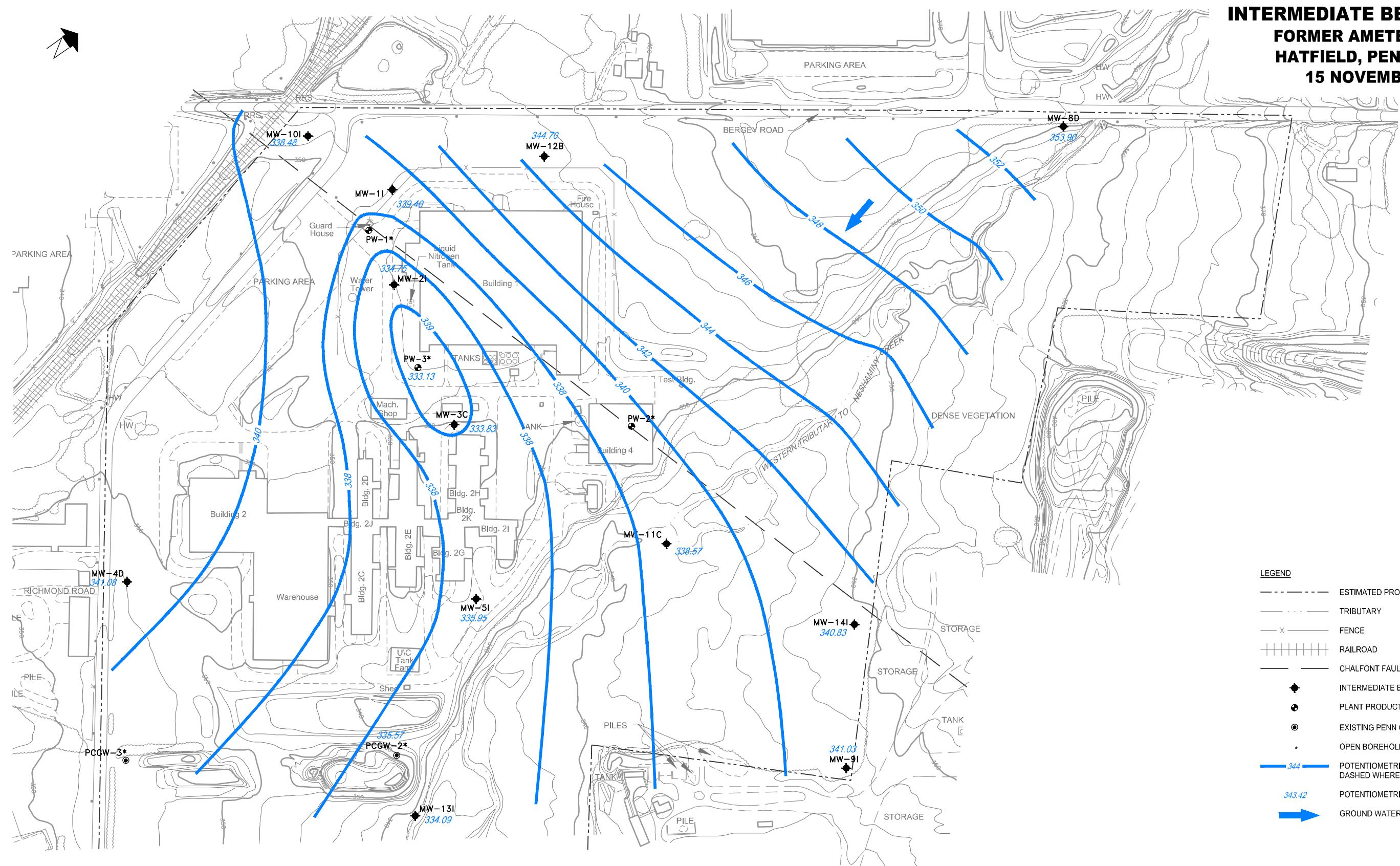
**FIGURE 3**  
**POTENIOMETRIC SURFACE MAP**  
**SHALLOW BEDROCK WELLS**  
**FORMER AMETEK FACILITY**  
**HATFIELD, PENNSYLVANIA**  
**15 MAY 2017**



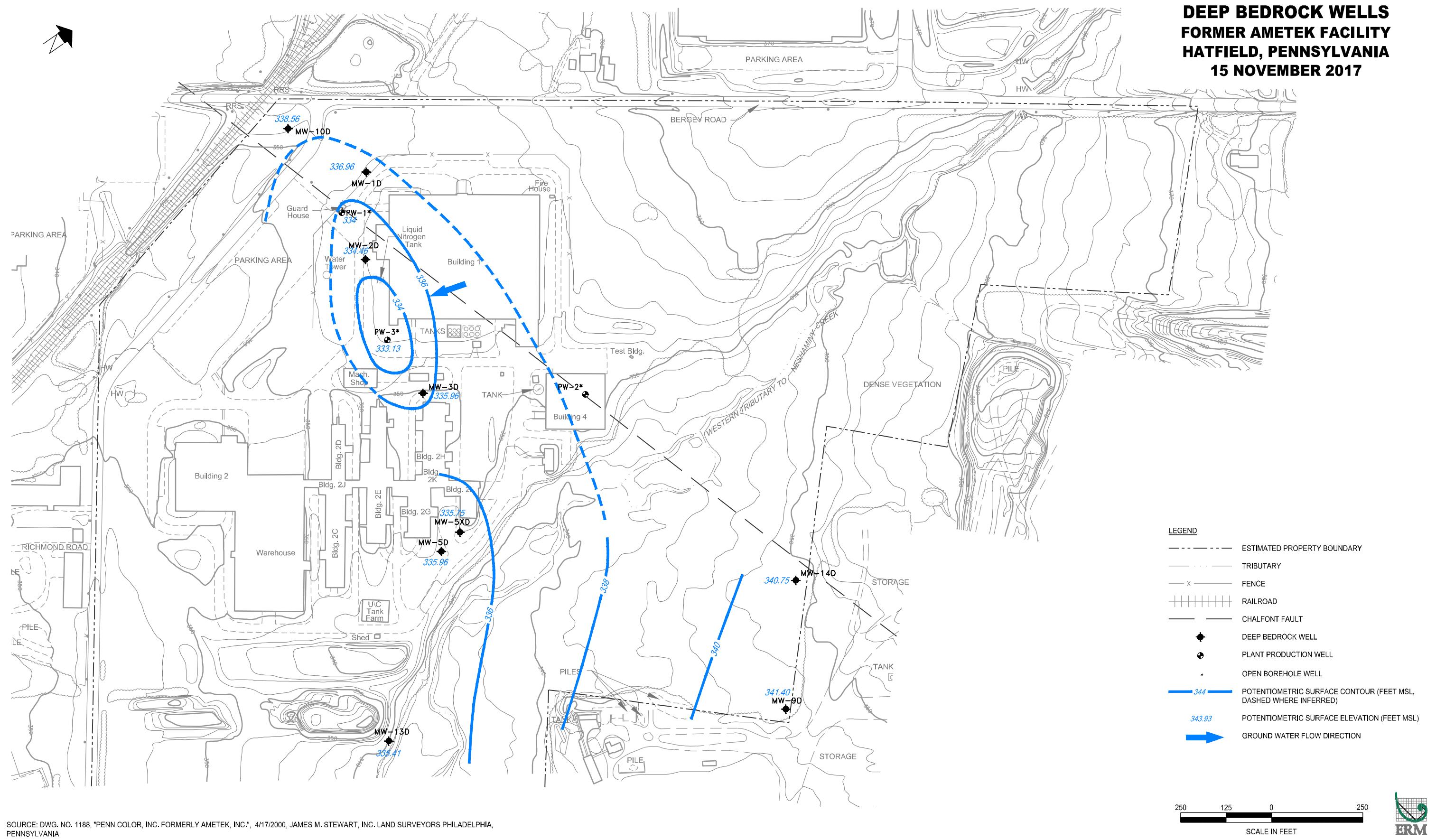
**FIGURE 4**  
**POTENIOMETRIC SURFACE MAP**  
**SHALLOW BEDROCK WELLS**  
**FORMER AMETEK FACILITY**  
**HATFIELD, PENNSYLVANIA**  
**15 NOVEMBER 2017**



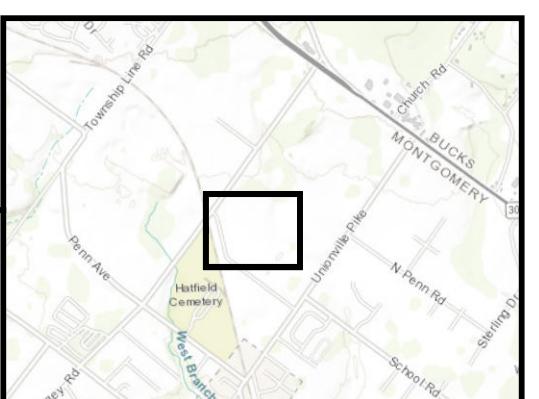
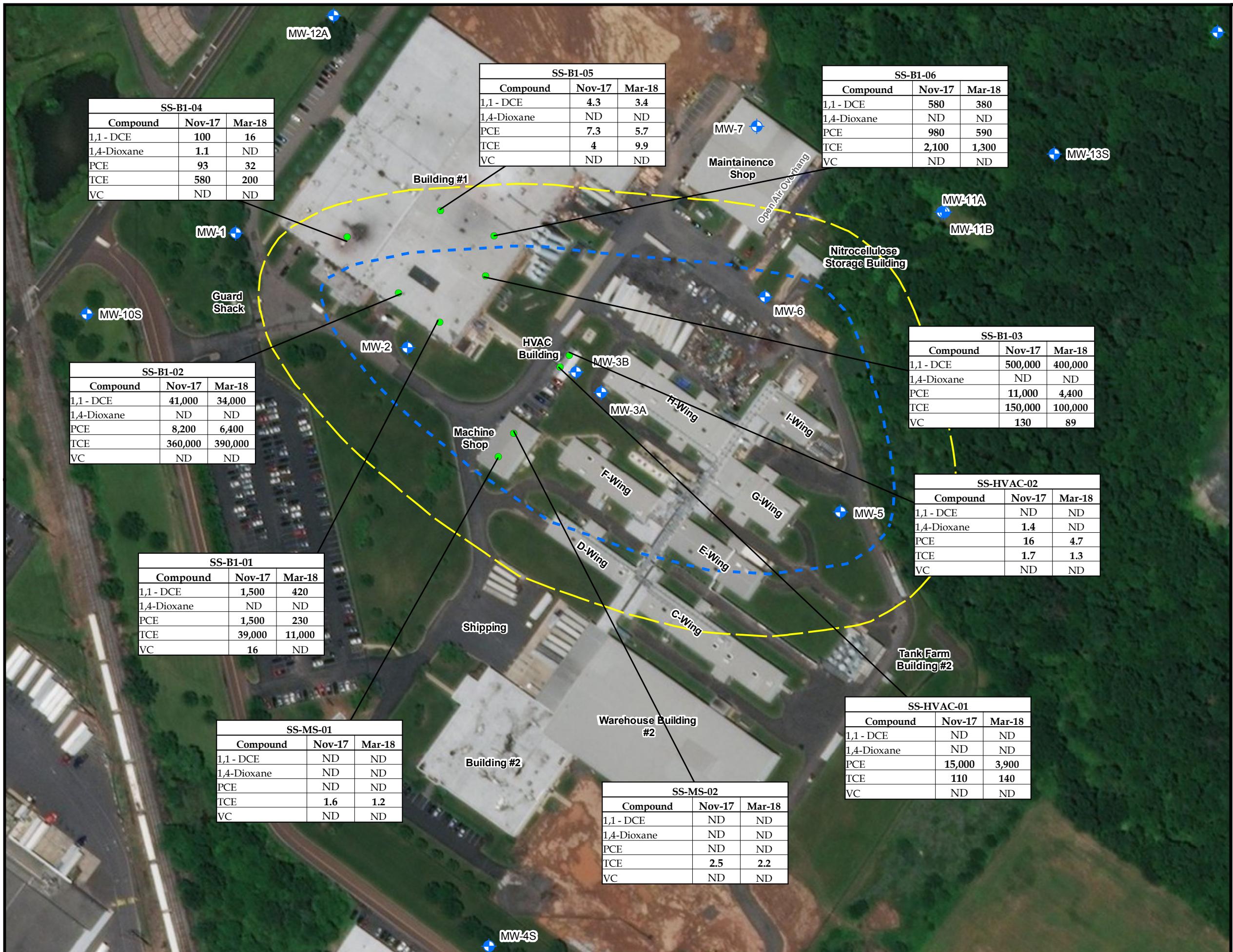
**FIGURE 5**  
**POTENIOMETRIC SURFACE MAP**  
**INTERMEDIATE BEDROCK WELLS**  
**FORMER AMETEK FACILITY**  
**HATFIELD, PENNSYLVANIA**  
**15 NOVEMBER 2017**



**FIGURE 6**  
**POTENIOMETRIC SURFACE MAP**  
**DEEP BEDROCK WELLS**  
**FORMER AMETEK FACILITY**  
**HATFIELD, PENNSYLVANIA**  
**15 NOVEMBER 2017**





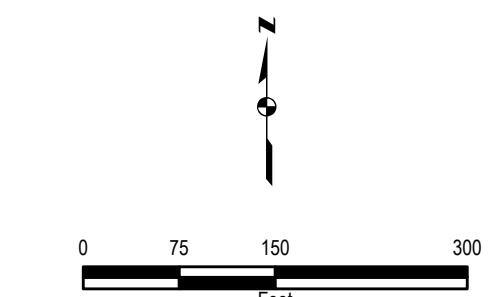


#### Legend

- Approximate Sub-Slab Sampling Locations
- Shallow Monitoring Well
- Groundwater TCE Contour Buffer (100 Ft.)
- - - Groundwater TCE Contour (5 µg/L)

#### Notes

All sampling locations are approximated  
 1,1 - DCE = 1,1 - Dichloroethene  
 PCE = Tetrachloroethene  
 TCE = Trichlorethene  
 VC = Vinyl Chloride  
 ND = Compound not detected above the Reporting Detection Limit  
 Bolded values indicate sample results greater than the Reporting Detection Limit  
 All sample results are reported in micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ )



**FIGURE 8**  
 Comparison of November 2017 and  
 March 2018 Sub Slab Sample Results  
 North Penn Area 2 Superfund Site  
 Hatfield Township, Pennsylvania  
 March 2018